NOT TO CIRCULATE

NOT TO CIRCULATE

Digitized by the Internet Archive
in 2016 with funding from
The National Endowment for the Humanities and the Arcadia Fund

https://archive.org/details/connecticutmedic5111conn

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 JANUARY 1987 NUMBER 1

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

STACKS

FEB 3 1987

REC'D. NOT TO CIRC.

scientific:

Ronald B. Goodspeed, Janneane F. Gent, Gerald Leonard and Frank A. Catalanotto 1 **The Prevalence of Abnormal Paranasal Sinus X-Rays in Patients with Olfactory Disorders**
Grace Chang and Boris Astrachan 4 **Identification and Disposition of Trauma Patients with Substance Use or Psychiatric Illness**
Jeffrey Canose, Donald R. Becker and John J. Ferrara 7 **The Value of Hepatic Imaging in the Management of Blunt Abdominal Trauma**
Peter T. Nieh and Joseph F. Chang 10 **Sarcomas of the Kidney**
Epitomes of Progress 13 **Important Advances in Clinical Medicine—General and Family Practice**

special articles:

C. Thomas Smith 21 **High Expectations Versus Limited Resources**
Helen L. Smits 25 **Medical Practice Variations Revisited**
Timothy B. Norbeck 29 **Aging America**
CSMS IPA-HMO Steering Committee 33 **M.D. Health Plan Application for Licensure**
Lief C. Beck 38 **Should Your Children Become Doctors?**
Drug Information Update:
Thomas P. Lombardi 41 **Metered Dose Inhalers**
Consensus Development Summaries:
National Institutes of Health 45 **Infantile Apnea and Home Monitoring**
AMA Council on Scientific Affairs 53 **Health Effects of Smokeless Tobacco**

departments:

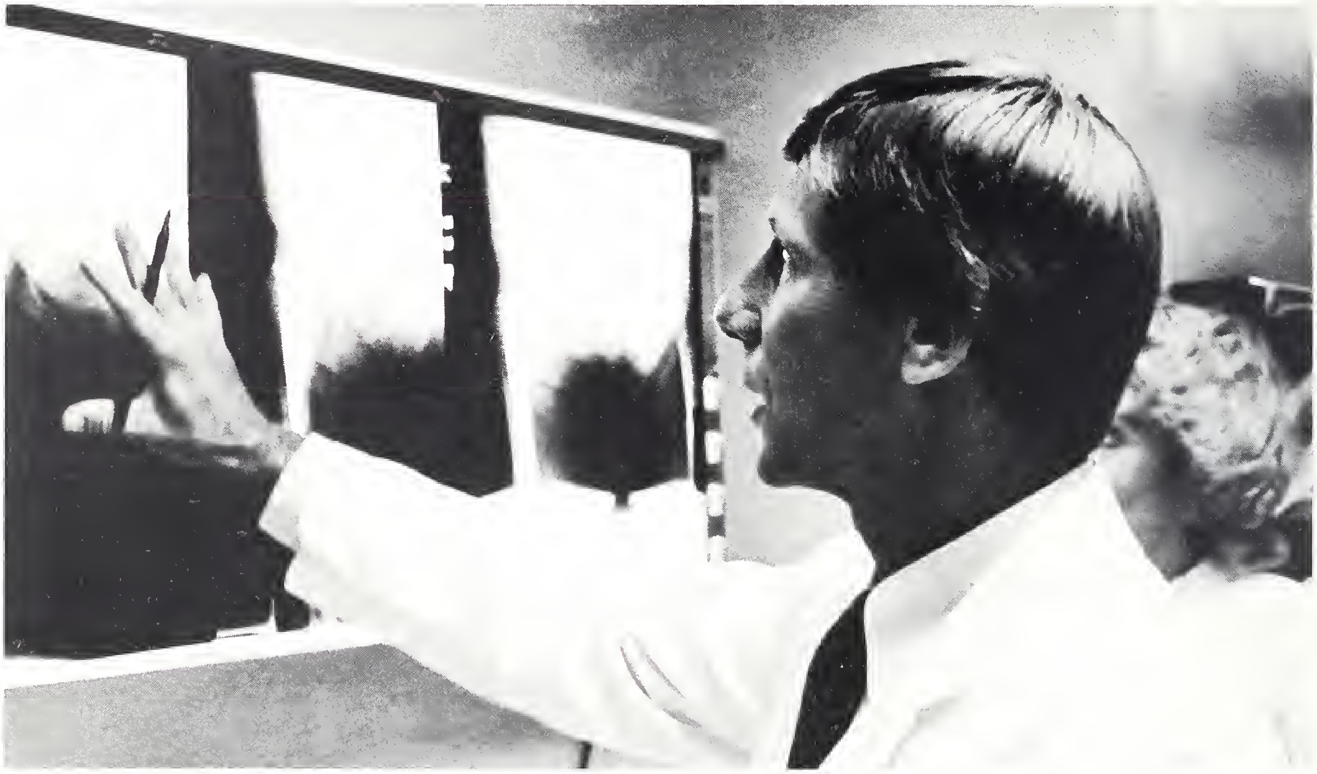
Reflections on Medicine
Robert U. Massey 60 **The Ninety-nine Day Kaiser**
Law, Medicine and Public Policy
Joseph M. Healey 63 **Clarifying the Therapist's Duty to Warn Potential Victims: II**
Timothy B. Norbeck 65 **CSMS House of Delegates—Summary of Proceedings**
Joseph C. Czarsty 67 **Report of the President**
70 **In Memoriam**
71 **Physician Placement Service**

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

CMIC

The only professional liability program offering you the advantage of physicians' insight and direction.



An illness is rarely cured overnight. Often the prescribed treatment may be complex and require vigilant and cooperative management by a team of medical professionals.

Established in 1984 by the Connecticut State Medical Society, CMIC was launched as a cooperative effort of CSMS physicians, their goal being to assist Connecticut physicians in gaining control of their professional liability insurance.

With over 2,100 member insureds, CMIC is giving physicians a strong voice in the control of their professional liability insurance. We may not cure the ills of a complex liability system, but we are dedicated to working with you, the physician, to provide a professional liability program tailored to your needs, responsive to your concerns.

CMIC

P.O. Box 757
Wallingford, CT 06492

1-800-228-0287

The Advantage of CMIC is yours.

Established in 1984 by the Connecticut State Medical Society

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 JANUARY 1987 NUMBER 1

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

STACKS

FEB 3 1987

REC'D. NOT TO CIRC.

scientific:

Ronald B. Goodspeed, Janneane F. Gent, Gerald Leonard and Frank A. Catalanotto 1 The Prevalence of Abnormal Paranasal Sinus X-Rays in Patients with Olfactory Disorders
Grace Chang and Boris Astrachan 4 Identification and Disposition of Trauma Patients with Substance Use or Psychiatric Illness
Jeffrey Canose, Donald R. Becker and John J. Ferrara 7 The Value of Hepatic Imaging in the Management of Blunt Abdominal Trauma
Peter T. Nieh and Joseph F. Chang 10 Sarcomas of the Kidney
Epitomes of Progress 13 Important Advances in Clinical Medicine—General and Family Practice

special articles:

C. Thomas Smith 21 High Expectations Versus Limited Resources
Helen L. Smits 25 Medical Practice Variations Revisited
Timothy B. Norbeck 29 Aging America
CSMS IPA-HMO Steering Committee 33 M.D. Health Plan Application for Licensure
Lief C. Beck 38 Should Your Children Become Doctors?
Drug Information Update:
Thomas P. Lombardi 41 Metered Dose Inhalers
Consensus Development Summaries:
National Institutes of Health 45 Infantile Apnea and Home Monitoring
AMA Council on Scientific Affairs 53 Health Effects of Smokeless Tobacco

departments:

Reflections on Medicine
Robert U. Massey 60 The Ninety-nine Day Kaiser
Law, Medicine and Public Policy
Joseph M. Healey 63 Clarifying the Therapist's Duty to Warn Potential Victims: II
Timothy B. Norbeck 65 CSMS House of Delegates—Summary of Proceedings
Joseph C. Czarsty 67 Report of the President
70 In Memoriam
71 Physician Placement Service

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 FEBRUARY 1987 NUMBER 2

STACKS

scientific:

Arthur P. Vercillo, Raymond C. Squier, Surendra Chawla, Stuart Houser, Fayyaz Hashmi and Donald R. Becker 74 Procaine Versus Magnesium in Cardioplegia Solution

K.J. Lee, David Fischer and Anthony P. Fappiano 76 Breast Carcinoma Metastatic to the Palatine Tonsils

Michael Alfred Peszke and Gale Anne Levin 79 The Ganser Syndrome: A Diagnostic and Etiological Enigma

Paul M. Murry and Mary Jean Ahern 84 Disseminated Aspergillosis and Cushing's Syndrome in a Community Hospital

special articles:

Kathleen N. Lohr, Caren J. Kamberg, Emmet Keeler, George A. Goldberg, Thomas A. Calabro and Robert H. Brook 87 Chronic Disease in a General Adult Population

AMA Council on Scientific Affairs 97 Dementia

Drug Information Update:

Gary Fusco and Berit Gunderson 103 Ribavirin

Consensus Development Summaries:

National Institutes of Health 105 Platelet Transfusion Therapy

Henry Schneiderman 111 The Inured Heart

Caroline C. Nielsen 113 The Physician's Dilemma

AMA—The Citation 117 Current Medicolegal Issues

William A. Whalen 121 M.D. Health Plan: Flashbacks

Centers for Disease Control 123 1986 Surgeon General's Report: Health Consequences of Involuntary Smoking

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

MAR 9 1987

REC'D. NOT TO CIRC.

editorials:

Robert U. Massey 127 M.D. Health Plan: Physicians in Charge

127 Medical Courtesy Card Program

departments:

The President's Page

Joseph C. Czarsty 129 Reflections

Reflections on Medicine

Robert U. Massey 131 In Praise of Being Amateur

Timothy B. Norbeck 137 From the Executive Director's Office

133 Book Reviews

139 Physician Placement Service

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 MARCH 1987 NUMBER 3

STACKS

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

APR 7 1987
REC'D.

NOT TO CIRC.

scientific:

Marie Tummillo and Manocher Lashgari 142 Acute Fatty Liver of Pregnancy
Jonathan S. Rubin, Arthur P. Vercillo and John A. D'Alotto 145 Primary Lymphoma of the Liver
Ronald Tietjen 147 Arthroscopic Re-Evaluation of the Knee
A. William Bertuch, Elizabeth Rocco and Elwin G. Schwartz 151 Eye Findings in Lyme Disease
Epitomes of Progress 153 Important Advances in Clinical Medicine—Plastic Surgery

special articles:

Linda C. DeGutis and Christopher C. Baker 161 Trauma in the Elderly: A Statewide Perspective
Drug Information Update:
Laurie L. Briceland 165 Lorazepam as an Adjunct to Antiemetic Therapy in Patients Receiving Cytotoxic Chemotherapy
AMA Council on Scientific Affairs 169 Pharmaceutical Dissolution of Gallstones
John K. Iglehart 171 Trends in Health Personnel
AMA Council on Long-Range Planning 178 Health Care in Transition: Consequences for Young Physicians
Centers for Disease Control 189 Epidemiologic Notes and Reports

editorials:

Albert F. May, Jr. 199 Measuring Quality of Care
Vincent A. Lynch 200 Cost Containment—A Challenge to Physicians
Cameron C. Staples 200 The Medical Courtesy Card Receives Reviews
Robert U. Massey 201 Medical Manpower

departments:

The President's Page
Joseph C. Czarsty 193 Light at the End of the Tunnel
Reflections on Medicine
Robert U. Massey 195 Declining or Only Changing?
Law, Medicine and Public Policy
Joseph M. Healey 197 Alternative Reproductive Technologies: Promise with Problems
Timothy B. Norbeck 204 From the Executive Director's Office
Guy W. Van Syckle 204 CSMS Endorses M.D. Health Plan's HMO
Letters to the Editor
Lawrence H. Bernstein 206 House Calls
196 Book Reviews
202 New Members
205 Physician Placement Service

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

---

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 APRIL 1987 NUMBER 4

STACKS

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

MAY 5 1987

REC'D. NOT TO CIRC.

Special Issue
Neurofibromatosis: Current Concepts
Arthur T. Rosenfield, M.D., Guest Editor

scientific:

Arthur T. Rosenfield 210 **Neurofibromatosis: Current Concepts**
Margretta R. Seashore 212 **Neurofibromatosis: Clinical and Genetic Features**
Sheila M. Gillespie and Bennett A. Shaywitz 215 **Neurological Manifestations of Neurofibromatosis**
Sally Rudicel 221 **The Orthopaedic Manifestations of Neurofibromatosis**
John F. Setaro and Henry R. Black 223 **Hypertension and Neurofibromatosis: Secondary Causes**
Nancy S. Rosenfield and Arthur T. Rosenfield 226 **Diagnostic Imaging in Neurofibromatosis**

special articles:

Milton Markowitz and Michael A. Gerber 229 **Rheumatic Fever: Recent Outbreaks of an Old Disease**
Henry R. Arkin 235 **Impartiality in Medical Staff Privileges Cases**
Epitomes of Progress 239 **Important Advances in Clinical Medicine—Allergy**
Consensus Development Summaries:
National Institutes of Health 249 **Diet and Exercise in Noninsulin-Dependent Diabetes Mellitus**
James E. Bryan 255 **View from the Hill**
The Medical Letter 257 **Buspirone: A Non-Benzodiazepine for Anxiety**
Gail Allyn Gaines 258 **Five Poems and One Verse**

editorials:

Allan E. Rubenstein 261 **Neurofibromatosis: 1977-1987**
Betty A. Bonus 262 **Extended Support for the Neurofibromatosis Patient**
Robert U. Massey 262 **New Concern for an Old Disease**

departments:

The President's Page
Joseph C. Czarsty 263 **Professionalism**
Reflections on Medicine
Robert U. Massey 265 **Concerning Multiple Fibromas of the Skin**
Law, Medicine and Public Policy
Joseph M. Healey 267 **Alternative Reproductive Methods: Toward a Comprehensive Public Policy**
Connecticut State Medical Society 269 **195th Annual Meeting Program**
Timothy B. Norbeck 273 **From the Executive Director's Office**
277 **In Memoriam**
279 **Physician Placement Service**

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 MAY 1987 NUMBER 5

STACKS

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

JUN 3 1987

REC'D. NOT TO CIRC.

scientific:

Maria Martins, R. Leonard Kemler, John C. Russell and Gerald O. Strauch 282 **Diaphragmatic Hernias of Morgagni**

Ronald Gugliotti 287 **The Incidence of Nosocomial Infections in a Skilled Nursing Facility**

William A. Petit, Jr. and Eugene J. Barrett 291 **Chronic Thyroxine Ingestion Leading to Thyroid Storm and Accelerated Thyroxine Turnover**

Arthur P. Vercillo, Raymond C. Squier, G. David Ritland, John C. Russell and Donald R. Becker 293 **Finger Dislocations in Alcoholics**

Epitomes of Progress 297 **Important Advances in Clinical Medicine—Otolaryngology/Head and Neck Surgery**

special articles:

Morbidity and Mortality Conferences

Michael Caplan, M.S. Gandelman and Henry Schneiderman 303 **A Case of AIDS: A Clinico-Immuno-Pathologic Correlation**

Connecticut Division of the American Cancer Society 311 **Consensus Statement by the Breast Cancer Task Force**

Centers for Disease Control 315 **Epidemiologic Notes and Reports**

Kenneth M. Robbins 323 **Primary Physicians and M.D. Health Plan**

Robert J. Brunell 325 **Medical Societies, Peer Review, and CSMS-IPA**

AMA Council on Scientific Affairs 327 **Elder Abuse and Neglect**

editorials:

M.T. Ergin 337 **Breast Cancer and the Primary Physician**

Robert U. Massey 337 **The Challenge of Long-Term Care**

The President's Page

Joseph C. Czarsty 339 **Reflections**

Reflections on Medicine

Robert U. Massey 341 **Eponyms and Old Friends**

Law, Medicine and Public Policy

Joseph M. Healey 345 **The Baby M Case: Background and Conclusions**

Letters to the Editor

W. Raymond James 342 **House Calls (Continued)**

Timothy B. Norbeck 346 **From the Executive Director's Office**

347 **Physician Placement Service**

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 JUNE 1987 NUMBER 6

scientific:

Alan E. Solinsky 350 **Terminal Care Decision Making**

Jeffrey D. Urman and Micha Abeles 361 **Rheumatoid Arthritis Complicated by Temporal Arteritis**

Cheryl E. Hinchliffe and George F. Thornton 362 **Bacillus Cereus Bacteremia in an Intravenous Drug Abuser**

Ronald B. Ponn, Richard Ruiz, Allan L. Toole and Harold Stern 366 **Pneumomediastinum from Cocaine Inhalation**

Epitomes of Progress 368 **Important Advances in Clinical Medicine—Neurology**

special articles:

Morton G. Feldman 377 **The Fire Saved His Life**

John H. Dunn 379 **Study Reveals High-Risk Areas of Emergency Medical Practice**

Centers for Disease Control 383 **Epidemiologic Notes and Reports**

AMA Council on Scientific Affairs 387 **Health Effects of Video Display Terminals**

James E. Bryan 395 **View from the Hill**

editorial:

Maria Pappas-Vereb 397 **Medical Professionals Are Mandatory Reporters for Protective Services to the Elderly**

STACKS

UNIVERSITY OF MARYLAND
BALTIMORE
JUL 7 1987
REC'D.
NOT TO CIRC.

departments:

James P. Orphanos 400 **Inaugural Address of the Incoming President**

Reflections on Medicine

Robert U. Massey 405 **Ethics without Virtue?**

Law, Medicine and Public Policy

Joseph M. Healey 407 **The Baby M Case: Findings and Implications**

Summary of Proceedings

Timothy B. Norbeck 409 **CSMS House of Delegates—Annual Meeting**

413 **Physician Placement Service**

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

The Prevalence of Abnormal Paranasal Sinus X-Rays in Patients with Olfactory Disorders

RONALD B. GOODSPEED, M.D., JANNEANE F. GENT, PH.D.,

GERALD LEONARD, M.D. AND FRANK A. CATALANOTTO, D.M.D.

ABSTRACT—Paranasal sinus x-rays were ordered as part of the routine diagnostic evaluation of a study group of 200 taste and smell clinic patients. All had olfactory symptoms as the primary complaint. Fifty-eight percent had signs of nasal or sinus disease on x-ray, or nasal examination, or both. In all but a few of these 116 cases, nasal or sinus disease appeared to be the cause of the olfactory problem. The degree of olfactory function loss appears to be significantly associated with the extent of nasal or sinus disease; i.e., patients with positive results on both indicators of disease, x-ray and nasal examination, had significantly lower olfactory function scores than those with negative results on both. Despite its thoroughness, 22% of the patients with negative nasal examinations had abnormal sinus x-rays. The overall rate of positive x-rays was high (51%). We conclude that olfactory symptoms alone could be considered symptomatic of nasal or sinus disease and an indication for sinus x-ray.

Olfactory complaints are frequently the only symptoms reported by patients presenting to a taste and smell clinic. A sense of smell that is reduced (hyposmia) or absent (anosmia) is the most frequent complaint, but some patients also report odor quality distortions or phantom odors (parosmia). We assessed the usefulness of sinus x-ray as part of a diagnostic evaluation of patients with olfactory symptoms as the primary complaint.

An otorhinolaryngologist would probably not be surprised to find a number of patients with olfactory deficits among his patients with nasal and sinus disease. It might be tempting to assume that the converse is also true, i.e., that a number of patients with olfactory symptoms would have nasal and sinus diseases. There appears to be support for this assumption, at least among patients presenting to a taste and smell clinic. Although olfactory symptoms have been attributed to many different causes,[1,2] nasal and sinus diseases, such as chronic rhinitis, nasal polyposis, and chronic hyperplastic sinusitis, appear to be among the most common.[3] Symptoms of nasal and sinus disease, such as chronic nasal stuffiness, sinus pain or pressure, and signs of nasal and/or sinus pathology, such as mucosal thickening, polyposis, or mucopurulent discharge are usually considered appropriate indications for sinus x-rays. However, patients with nasal and/or sinus disease may be asymptomatic and may also be without significant signs of disease in the nasal airway.[4,5] An olfactory complaint alone has seldom been considered a symptom of paranasal sinus disease or an absolute indication for sinus x-rays.

The diagnostic yield of sinus x-rays for a study group of taste and smell clinic patients is presented and compared to results of the thorough nasal airway examination. Consideration is given to olfactory complaints as a symptom of sinus disease and an indication for sinus x-ray.

Methods

Patients seen at the Taste and Smell Center are typically self-referred and have taste and/or smell complaints as the primary problem. The study group included 200 patients seen from June, 1982 to December, 1984, who complained of olfactory dysfunction.

Quantitative assessment of olfactory function was accomplished with a test developed at the Center.[6,7] The test includes a multiple choice task of odor identification and a measurement of the ability to detect butyl alcohol. Each nostril is tested separately. An olfactory function score is derived by averaging the test scores for the left and right nostrils. For the purpose of this study, patients

---

RONALD B. GOODSPEED, M.D. Assistant Professor of Medicine, Department of Medicine, University of Connecticut School of Medicine; Associate Chief of Staff, Veterans Administration Medical Center, Newington, CT; JANNEANE F. GENT, PH.D., Assistant Professor of Pediatric Dentistry, Department of Pediatric Dentistry, University of Connecticut School of Dental Medicine; GERALD LEONARD, M.D., Assistant Professor of Surgery, Department of Surgery, University of Connecticut School of Medicine, Farmington, CT; FRANK A. CATALANOTTO, D.M.D., Professor of Pediatric Dentistry, Department of Pediatric Dentistry, University of Connecticut School of Dental Medicine, Farmington, CT.

Presented in part at the seventh annual meeting of the Association for Chemoreception Sciences, April, 1985.

Supported by grant NS16993 to the Connecticut Chemosensory Clinical Research Center.

were assigned to function categories based on the following olfactory function score boundaries: 0 to 19, anosmia; 20 to 84, hyposmia; and 85 to 100, normosmia.

Another important part of our evaluation of a patient with an olfactory complaint is a thorough examination of the nasal airway and nasopharynx. Examination includes the use of a flexible, fiberoptic nasopharyngoscope. Examination is considered positive (abnormal) if nasal polyps or polypoidal changes are present in either of the nasal airways or the nasopharynx.

Paranasal sinus x-ray series included four views: Waters, occipitofrontal, lateral, and submento-vertical. X-rays were interpreted by an otorhinolaryngologist (G.L.) blinded as to olfactory score. The effects of observer variability were not assessed. X-rays were considered positive (abnormal) if mucosal thickening ($\geq$ 3mm), opacification, or air-fluid levels were present in one or more sinuses. The presence of nasal and/or sinus disease is established by a positive result on either nasal examination or sinus x-ray. Nasal and sinus disease included nasal polyposis, acute or chronic sinusitis, and chronic rhinitis.

The association of various patient characteristics with x-ray outcome was examined by testing the differences between group means (t-test or Scheffe's range test) or by using contingency table analyses (chi-square). Level of significance was $p<0.05$. Variables examined for the x-ray positive and x-ray negative groups include age, sex, olfactory score, olfactory function category, presence or absence of parosmia, and nasal examination results.

Informed consent has been obtained from all patients evaluated at the Taste and Smell Center.

Results

Over half (61%) of the 200 patients were male and 39% female. The mean age was 49.8 years, with a range of 11 to 81. Olfactory testing determined 57.9% of these patients to be anosmic, 35.4% hyposmic, and 6.7% normosmic. Twenty percent reported a parosmia. The most common cause of olfactory deficit among the study group of patients was nasal/sinus disease (51%). Other causes included idiopathic, 22%; post-upper respiratory illiness, 15%; post-head trauma, 6.5%; and multiple probable causes, 4%. Nasal examination was positive in 46.2% of 199 patients and x-rays were positive in 51% of the total 200 patients.

Clinical features of the group of patients with positive x-rays include a significantly greater proportion of anosmia (71%), lower occurrence of parosmia (11%), and larger percentage of positive nasal examinations (77%) compared to the group with negative x-rays (Table 1). There were no significant differences in age or sex distribution between the two x-ray groups.

Agreement between x-ray and nasal examination findings occurred in 80% of all patients. Of the remaining 20%, 12% had positive x-rays but had negative nasal examinations. This represents 22% of the 107 patients with negative nasal examinations. The remaining 8% of all patients had positive nasal examinations and negative x-rays.

Impaired olfactory function appears to be associated with the presence of nasal and/or sinus disease. The mean olfactory function score is significantly lower for the x-ray positive group (14.4 ± 2.4), than for the x-ray negative group (31.5 ± 3.1) ($p<0.01$). In fact, 79% of x-ray positive patients had a score of 20 or less compared to 50% of the x-ray negative patients (Figure 1). Figure 2 compares olfactory function scores of patients with more extensive disease, i.e., both indicators (x-ray and ex-

Table 1

Clinical Features of Patients with Positive (N = 102) and Negative (N = 98) Sinus X-rays[a]

	SINUS X-RAY	
	Positive	*Negative*
OLFACTORY FUNCTION**		
Anosmic	71 (72%)	42 (43%)
Hyposmic	25 (26%)	44 (45%)
Normosmic	2 (2%)	11 (11%)
TOTAL	98	97
PAROSMIA*		
Present	11 (11%)	29 (30%)
Absent	91 (89%)	69 (70%)
TOTAL	102	98
NASAL EXAM*		
Positive	77 (76%)	15 (15%)
Negative	24 (24%)	83 (85%)
TOTAL	101	98

[a]Values are numbers of patients having complete information for the clinical feature; 195 cases for olfactory function, all 200 for parosmia, and 199 for nasal exam; percentages (in parentheses) are of the column total.

* $p<.05$, chi-square test
** $p<.001$, chi-square test

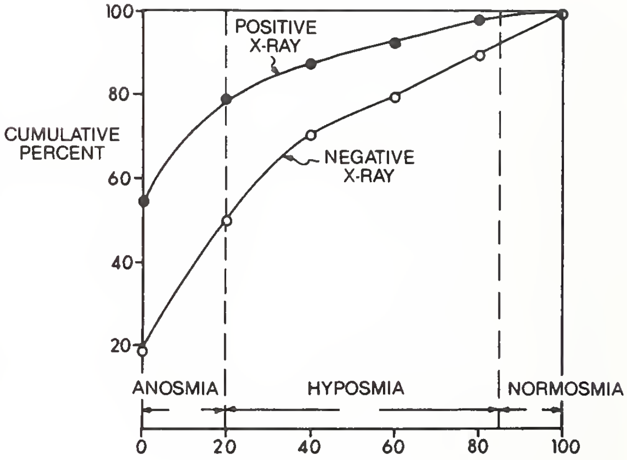


Figure 1

Cummulative frequency distribution (in percent) of the olfactory function score for patients with positive x-ray results (filled circles) (N=98) and negative x-ray results (open circles) (N=97). The boundaries of the function categories anosmia, hyposmia, and normosmia are indicated (vertical dotted lines).

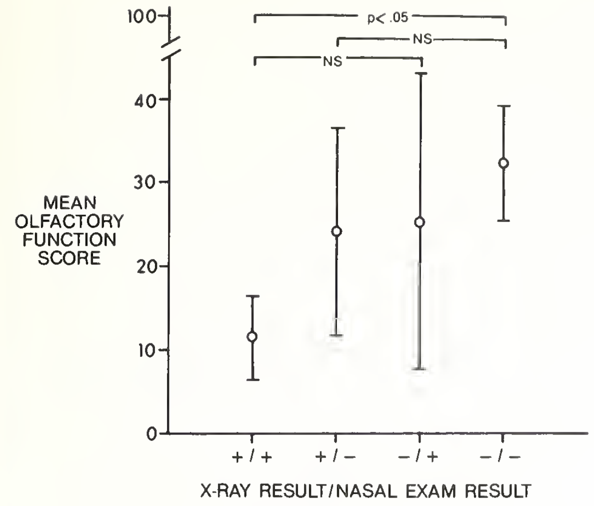


Figure 2

Ninety-five percent confidence intervals (bars) for the mean olfactory scores (circles) of patients grouped by x-ray and nasal examination outcomes, positive (+) and negative (−). The difference between the mean score of the +/+ (N=73) and −/− (N=82) groups was significant ($p < .05$); differences between the +/− (N=24) or −/+ (N=15) group and any other group were not significant (NS) (Scheffe's range test).

amination) positive, with those of patients with less extensive disease (one indicator positive) and no disease (both indicators negative). The mean olfactory score for patients with positive results on both nasal and/or sinus disease indicators is significantly lower than for patients with negative results on both indicators ($p < 0.05$).

Discussion

Among this group of Taste and Smell Center patients, olfactory deficit was often the only symptom of nasal or sinus disease. Despite the thoroughness of the fiberoptic nasopharyngoscopic examination, 22% of the patients with no signs of nasal or sinus disease (i.e., examination negative) had evidence of acute or chronic sinus disease on x-ray. Our experience suggests the percentage of positive x-rays probably would be even higher among patients with no signs of disease on routine nasal speculum examination without the use of a fiberoptic device.

There appears to be an association between the extent of nasal and sinus disease and the degree of olfactory function loss (Figure 2). Patients with the most extensive nasal and/or sinus disease were found to have the greatest olfactory function loss. Patients with severe olfactory function loss were more likely to have positive sinus x-rays. Sixty-three percent of anosmic patients had positive x-rays as compared to 36% of hyposmic patients.

Although a positive sinus x-ray does not reveal the cause, our surgical experience with 20 of these patients suggests that most have nonspecific hyperplastic sinusitis. We recognize that mucosal thickening on x-ray may be considered by some as an indication of vasomotor rhinitis and not as a positive indicator of sinus disease. Out of the 200 study patients, 22 had x-rays positive for "mucosal thickening". None of the 22 was assigned to the nasal/sinus disease category as a result of the positive x-ray alone. Of these 22, all but five had examination results positive for nasal polyposis. Of these five, three were diagnosed as having nasal and/or sinus disease: one due to a history of nasal polyps, nasal polypectomies, and sinus surgery; one due to mucopurulent discharge on examination (but no polyps); and one as a result of a CT scan of the paranasal sinuses which was positive for sinus disease. The two remaining patients had negative examinations, negative histories, and were classified as idiopathic.

As a "control" of sorts for the incidence of mucosal thickening on x-ray, one could examine the subset of 13 study patients who were diagnosed as having their olfactory problems as a result of head trauma. None of the 13 had x-rays positive for mucosal thickening. The fact remains that the patients with positive x-rays had significantly lower olfactory function scores.

Clinicians frequently are concerned that central nervous system pathology is the cause for olfactory symptoms. However, the incidence of frontal and temporal lobe brain pathology is low.[3,8,9] We conclude that olfactory deficit alone, particularly anosmia or severe hyposmia should be considered an indication for radiologic examination of the paranasal sinuses. The high percentage of positive x-ray results (53% of all patients with abnormal olfactory function and 63% of the subset of patients with anosmia) suggests that sinus x-rays are a useful part of the diagnostic evaluation of patients with olfactory complaints. Further diagnostic testing (e.g., CT scan) would be considered appropriate for the patient with negative nasal examinations and negative sinus x-rays.

REFERENCES

1. Doty RL: A review of olfactory dysfunctions in man. Am J Otolaryngol 1979, 1:57-79.
2. Schiffman SS: Taste and smell in disease. NEJM 1983, 308:1275-1279.
3. Goodspeed RB, Catalanotto FA, Gent JF, et al: Clinical characteristics of patients with taste and small disorders, in Meiselman HL, Rivlin RS (eds): Clinical measurement of taste and smell. New York: Macmillan Publishing Co 1985: in press.
4. Fascenelli FW: Maxillary sinus abnormalities: Radiographic evidence in an asymptomatic population. Arch Otolaryngol 1969, 90:98-101.
5. Friedman WH, Slavin RG: Diagnosis and medical and surgical treatment of sinusitis in adults. Clin Rev Allergy 1984, 2:409-428.
6. Cain WS, Gent JF, Catalanotto FA, Goodspeed RB: Clinical evaluation of olfaction. Am J Otolaryngol 1983, 4:252-256.
7. Cain WS, Gent JF: Use of odor identification in clinical testing of olfaction, in Meiselman HL, Rivlin RS (eds): Clinical measurement of taste and smell. New York: Macmillan Publishing Co, 1985: in press.
8. Henkin RI: Olfaction in human disease, in English GM (ed): Looseleaf Series of Otolaryngology. New York: Harper and Row 1982, pp 1-39.
9. Bakay L: Olfactory meningioma: the missed diagnosis. JAMA 1984, 251:53-55.

Identification and Disposition of Trauma Patients with Substance Use or Psychiatric Illness

GRACE CHANG, M.D. AND BORIS ASTRACHAN, M.D.

ABSTRACT—The authors reviewed the charts of 379 consecutive patients, who presented for trauma care in an urban teaching hospital emergency room, with emphasis on the identification and disposition of those who were identified or suspected to have used substances or to have psychiatric illnesses. Despite the limitations imposed by a natural study, the authors believe that their preliminary work suggests that case finding, linkage, and referral are central in addressing some of the behavioral components of injury.

Introduction

The fourth leading cause of death in the United States is injuries. In terms of life lost prematurely, injuries rank first, before malignant neoplasms, heart disease, and cerebrovascular disease.[1] The estimated societal cost of injuries is more than $83 billion annually.[2] Yet, possibly save for concern about reducing automobile accidents, injury prevention efforts do not appear to be proportional to the morbidity and mortality caused by accidents.

The emergency service of a general hospital is the chief provider of care for both urgent and nonurgent injuries. The demographic characteristics of those who use emergency services has been well documented in numerous studies.[3-7]

As the emergency service is usually the primary entry point to the health care system for the injured patient, the emergency physician has the opportunity to arrange referrals for follow-up care. Indeed, the American Council of Emergency Physicians, Behavioral Emergencies Committee, stated that beyond those entities that are primary emergencies, the behavioral and emotional components of injury and illness constitute a major component in the total care of emergency patients.[8] However, in an atmosphere not necessarily conducive to "educated" listening, with a high premium on rapid disposition because of time demands, optimal referrals may fail to be made consistently.[9,10] The role of the psychiatric and substance abuse services within emergency rooms is usually restricted to attending to acute behavioral crises and effecting appropriate referrals. In some settings, this role extends to provision of support for abuse patients, to rape crisis counselling, and even to support of the acutely bereaved. However, even in such settings there seems to be little attention paid to case finding, linkage, and referral.

Alcohol and drug use are underlying but often overlooked risk factors for many injuries.[11] For example, as the blood alcohol concentration rises, the chances for any form of accident also rise.[11,12] But beyond the benefits of recognizing alcohol use in the immediate management of injury, alcohol treatment referral may halt not only the possible alcohol abuse, but future injury as well.

In addition, the fact that patients with emotional disorders suffer from higher rates of physical disease and accidents than those without emotional problems is fully supported. Hanker and Oktay show in a 17 year review of the literature that persons with mental health problems average about twice as many visits to physicians (other than psychiatrists) as those without such problems.[13] Furthermore, individuals with personality disorders account for much of the increased risk of accidents among the mentally ill.[14-16]

In a natural study, it is difficult to identify substance users and psychiatric patients unless a history of prior disorder is documented or a suspicion is recorded. The purpose of this descriptive effort is to review 379 consecutive emergency trauma patients in an urban teaching hospital in order to identify those patients suspected of or documented to have substance use or psychiatric illness, to look at their dispositions for further care, and to generate hypotheses for further studies.

Method

This descriptive study reviewed 379 consecutive trauma contacts in a teaching hospital from July 1 to 7, 1985. Charts were not reviewed if the patient was younger than 16 years or older than 70 years, and if the chief complaint was primarily ophthalmologic or dental. A handful of patients may have presented twice in one week, but each contact was counted separately if the presentations

---

GRACE CHANG, M.D., Postdoctoral Fellow; BORIS ASTRACHAN, M.D., Professor of Psychiatry; both of the Department of Psychiatry, Yale University School of Medicine.

Reprint requests to: Robert Wood Johnson Clinical Scholars Program, Yale University School of Medicine, Box 3333, New Haven, CT 06510-8025 (Dr. Chang).

occurred more than 24 hours apart. The age parameters were chosen to exclude childhood injuries and those secondary to frailty. The emergency contact sheets were abstracted for the following information: date in the emergency room (ER), date of birth, race, sex, marital status, address, nature of trauma, intervention, diagnosis, medications, history of substance use, laboratory findings of substance use, and history of psychiatric care. History of previous trauma and psychiatric care were noted and are recorded in Table 1. Patients' names were not recorded to ensure confidentiality. The last three digits of the hospital identification number were noted, however, in the event that follow-up is desired at some later date.

Table 1
TYPES OF INJURIES AND COMMENTS

Type	*Total*	*Comments*
Assault	60	17/60 + or suspected of alcohol
Wounds	25	2/25 alcohol history, 1/25 + chronic drug use, 4/25 S/P assault
MVAs	65	13/65 + or suspected of alcohol 2/65 + substance abuse history 3/65 + history of prior trauma 1/65 + psychiatric history
Home accidents	59	–
Lacerations	35	3/35 + psychiatric history 2/35 unknown etiology
Sports	39	no check on substance use
Pain	35	2/35 + psychiatric history 1/35 + alcohol 1/35 + "nerve" pill
Work	31	1/31 + previous trauma
Falls	23	5/23 + or suspected of alcohol
Burns	7	–
	379	

Results

The trauma patients were sorted into one of ten categories of trauma. These included assault, complications or follow-up care of wounds, motor vehicle accidents, home accidents, laceration, sports related injuries, acute and chronic pain, work related injuries, falls, and burns. Assaults, motor vehicle accidents, and home injuries accounted for nearly half of all presentations. Assault patients included both perpetrators and victims of assault. Motor vehicle accidents involved drivers, passengers, and pedestrians. Home accidents included those injuries clearly incurred while pursuing the activities of daily living, and not readily categorized as another type of injury, such as a laceration.

Of the 379 patients, 43 were explicitly suspected or identified as substance users. They accounted for over one fifth of all assault, wound, motor vehicle accident, pain, and fall presentations. More specifically, 38 of the 43 had ingested alcohol. Another six of the 379 were identified as patients with psychiatric illness. A further four of the 379 had a history of previous or repeated trauma. Of the 53 substance users, psychiatric patients, or those with a history of repeated or previous trauma, only the three psychiatric patients who sustained self-inflicted lacerations were referred for psychiatric care. No referrals were made for substance use evaluation or treatment.

Other dispositions might be summarized as follows. One hundred twenty patients were referred for surgical follow-up to ER clinics or private physicians. Twenty six patients were admitted as surgical in-patients. Of the 26, four were evaluated for alcohol levels and one was being treated with an antidepressant prior to admission (see Table 3). Seven patients left prior to completion of their work-up. Of these seven, one was intoxicated with alcohol, and one was being treated with a "nerve pill" prior to the ER contact. Three patients went to jail or were returned to police custody. Two dispositions were not recorded, and are, therefore, unknown. Both were explicitly suspected or identified as being alcohol users. Referrals are summarized in Table 2.

Table 2
SUMMARY OF REFERRALS

	ER Clinics/ Private	*Substance/ Psychiatry*	*Admitted*	*Other*
Assault	13	0	3	4 walked out, 3 jail or PD
Wounds	14	0	2	–
MVAs	15	0	8	1 unknown
Home accidents	15	0	1	2 walked out
Lacerations	13	3	2	1 unknown
Sports	12	0	4	–
Pain	10	0	3	1 walked out
Work	15	0	2	–
Falls	11	0	1	–
Burns	2	0	–	–
	120	3	26	

Table 3
ADDITIONAL COMMENTS ON PATIENTS ADMITTED TO SURGERY

	#Admitted	*#Admitted/ Total #*	
Assault	3	3/60	⅓ + alcohol
Wounds	2	2/25	none assessed in ER for substances
MVAs	8	8/65	⅜ had alcohol levels drawn
Home accidents	1	1/59	–
Lacerations	2	2/35	–
Sports	4	4/39	¼ on antidepressants, none checked for substances
Pain	3	3/35	–
Work	2	2/31	–
Falls	1	1/23	–
Burns	–	0/7	–
	26	26/379	

Discussion

Conducting a preliminary study such as this during a six day period in the summer may well bias data collection. First, it is the beginning of the academic year for house officers. Second, the fact that a relatively short period may select for a disproportionate number of frequent users is appreciated. Yet, as in other studies, this July sample was retained with these aspects in mind.[4] Although it is a new academic year for housestaff, it is also a time of close supervision by more experienced physicians. Quality of care should not suffer. In addition, the characteristics of emergency service patients in other seasons are quite similar with respect to demographic and medical problems.[4]

Certainly noteworthy among the tabulated observations is that only three of 379 patients were referred for psychiatric evaluation or treatment. These three patients sustained self-inflicted lacerations, and they were probably referred because their behavior was clearly intentional and harmful.[17] Forty three of the total were suspected or identified as having used substances, but none was referred for further evaluation. Perhaps the limited number of referrals reflects the possibility that some of the individuals were already in treatment. This is speculative, as no charts of substance users reflected that possibility. On the other hand, six people were identified as having known psychiatric illnesses and being in treatment.

Another explanation for the limited number of referrals is the problem of diagnosing and treating the patient who uses substances. For example, the patient who is acutely intoxicated, or in the early stages of withdrawal, or is stuporous from an overdose is easily recognized. Much more difficult is the identification of the alcohol abusing patient who presents with a simple laceration or fracture, or after nearly drowning, or with 30% of the body surface involved in a second or third degree burn.[18] Indeed, alcoholism has inherited the title formerly held by both syphilis and tuberculosis as the "great masquerader." Despite the pervasive consequences of dysfunctional substance use, it has been estimated that the average amount of time devoted to teaching physicians about alcohol and drug issues averages 1% of the total medical school curriculum. Alcoholism is the neglected disease.[19]

Available evidence implicates alcohol consumption as a major risk factor for all types of injury.[11,12,20] Furthermore, the high prevalence of injury among persons who drink excessively suggests that a history of trauma may well signal the presence of alcohol abuse, in contrast to laboratory tests which appear to have a high sensitivity only with more chronic alcoholics, or in those who have ingested alcohol in the preceding 24 hours.[21] Earlier detection of problem drinking is especially desirable since untreated alcoholics often suffer additional trauma.[20] After the necessary care has been given, the opportunity for identification and intervention in dysfunctional alcohol use exists, as the surgeon has the respect and authority to recommend referral. An effective liaison program is desirable, as its lack might discourage already overworked clinicians.

Indeed, it appears that the major issue is that the ER is not a case finding setting. Discussions with ER physicians suggest that the results from this preliminary work underrepresent the proportions of substance use and mental illness, as identification of these patients is not truly routine. Therefore, it might be invaluable to consider designing a referral system in the ER, not only to complete this initial work, but also to control a clearly important public health problem. By modifying the role of substance use in injuries, it may be possible to reduce the significant mortality and morbidity accidents cause.

REFERENCES

1. Unintentional and Intentional Injuries—US, MMWR 1982, 31:240-247.
2. National Safety Council, Accident Facts 1981 Edition, Chicago 1981, National Safety Council.
3. Askenasi R, Rasquin C, VanReeth O, et al: What is Emergency? Analysis of a population presenting to an Emergency Room, Acta Anaesthesiologica Belgica 1984, 384#1:53-65.
4. Weinerman ER, Ratner RS, Robbins A, et al: Yale Studies in Ambulatory Care, V. Determinants of Use of Hospital Emergency Services, American Journal of Public Health 1966, 56:1037-56.
5. Williams K: Who Uses the Accident Service? Injury 1984, 16:35-37.
6. Zonana H, Henisz J, and Levine M: Psychiatric Emergency Services A Decade Later, Psychiatry in Medicine 1973, 4#3:273-290.
7. O'Grady KF, Manning WG, Newhouse JP, et al: The Impact of Cost Sharing in Emergency Department Use, NEJM 1985, 313#8:484-490.
8. American College of Emergency Physicians: The Emergency Physicians Role in Behavioral Emergencies, Annals of Emergency Medicine 1984, 972:163-164.
9. Visiger D, Apter A, Aviram U, et al: Overutilization of the General Hospital Emergency Room for Psychiatric Referrals in an Israeli Hospital, American Journal of Public Health 1984, 74:73-75.
10. Makadon HJ, Gerson S and Ryback R: Managing the Care of the Difficult Patient in the Emergency Unit, JAMA 1984, 252:2582-2588.
11. Lowenfels AB and Miller TT: Alcohol and Trauma, Annals of Emergency Medicine 1984, 13:1056-1060.
12. James J, Dargon D and Day R: Serum vs Breath Alcohol Levels and Accidental Injury: Analysis Among US Army Personnel in an Emergency Room Setting, Military Medicine 1984, 149:369-374.
13. Hankin H and Oktay J: Mental Disorder and Primary Care: An Analytical Review of the Literature, US DHEW 1979.
14. Noyes R: Motor Vehicle Accidents Related to Psychiatric Impairment, Psychosomatics 1985, 26:569-579.
15. Tsuang M, Boor M and Fleming JA: Psychiatric Aspects of Traffic Accidents, AM J Psychiatry 1985, 142:538-546.
16. Ruane TJ: Repeated Trauma as the Presenting Symptom of a Pathological Grief Reaction, Journal of Family Practice 1980, 10:327-328.
17. Guggenheim F and Weiner M: Manual of Psychiatric Consultation and Emergency Care, New York: Jason Aaronson 1984.
18. Moessner H: Accidents as a Symptom of Alcohol Abuse, Journal of Family Practice 1979, 8:1143-1146.
19. Holden C: The Neglected Disease in Medical Education, Science 1985, 229:741-742.
20. Zuska JJ: Wounds without Cause, Bulletin of the American College of Surgeons, October, 81:5-10.
21. Ocrant I, Mallory D and Moore R: The Relationship Between Emergency Room Patient Diagnoses and Medical Officer of the Day Training in a Small Military Hospital, Military Medicine 1984, 149:366-368.
22. Skinner HA, Holt S, Schuller R, et al: Identification of Alcohol Abuse Using Laboratory Tests and a History of Trauma, Annals of Internal Medicine 1984, 101:847-851.

The Value of Hepatic Imaging in the Management of Blunt Abdominal Trauma

JEFFREY CANOSE, M.D., DONALD R. BECKER, M.D. AND JOHN J. FERRARA, M.D.

ABSTRACT—Of 45 liver scans (LS) obtained in the assessment of blunt abdominal trauma patients, eight (18%) were positive, suggesting intrahepatic or subcapsular injury. All were managed with aggressive hemodynamic support and close observation. No patient required surgery, and all were discharged without incident. In addition to a strong clinical index of suspicion, several statistically significant factors distinguished those patients with a positive scan from the remainder, including liver transaminase levels at least five times normal, and a clinical complexity score of three or greater. It is felt that these factors can be prospectively utilized to identify patients who have suffered significant blunt hepatic injury that would be confirmed by hepatic imaging.

The past several years have seen a gradual change in many policies regarding the management of patients afflicted with blunt abdominal trauma. While few will argue against the necessity of celiotomy in a patient with intraabdominal hemorrhage who cannot be resuscitated to a point of hemodynamic stability, others have shown that certain injuries, previously felt to mandate surgical intervention, may be successfully treated with aggressive nonoperative support. The latter is particularly evident when the suspicion of isolated blunt liver injury is confirmed by a hepatic imaging examination performed upon a hemodynamically stable patient. Several reports have documented patients who have suffered subcapsular and/or intrahepatic hematomas found by liver scintigraphy (LS) followed to complete resolution without requiring surgery.[1] However, beyond "clinical index of suspicion" little is reported in regard to guidelines for selecting patients likely to have suffered significant blunt hepatic trauma and who therefore would achieve both diagnostic and therapeutic benefit from hepatic imaging.

Therefore, a review of patients who had hepatic imaging for suspicion of blunt hepatic trauma was undertaken to shed light upon the following concerns: 1) can documented hepatic injury be managed nonoperatively? 2) are there accurate clinical parameters, the presence of which should warrant hepatic imaging? 3) can serologic tests contribute toward the decision to order hepatic imaging?

Population Parameters

Of 12,545 nuclear medicine studies completed at Saint Francis Hospital and Medical Center between 1 January 1982 and 31 December 1983, 51 were performed as initial studies in patients who had suffered abdominal trauma. Six were excluded because of inadequate information documented in the records (all had negative LS), leaving 45 patients available for further study. Of that total, 29 were male with ages ranging from 18 months to 81 years. Over half were involved in motor vehicle accidents either as driver or passenger; pedistrian injury, falls, and assault accounted for the remainder.

The most common reason given for obtaining an LS included clinical suspicion (40%), elevated liver transaminase levels (29%), and decreasing hematocrit in an otherwise stable patient (24%). The dominant reason for obtaining an LS was unclear in a minority of patients (16%). All scans were performed within 24 hours of the initial assessment.

Results

The LS demonstrated an intracapsular and/or subcapsular hematoma in eight of 45 patients; in six of these, the lesion was at least 3 cm in greatest dimension. The defect was solitary in seven patients; the right lobe was the site in six. All patients with hepatic injury were treated with aggressive hemodynamic support and close observation; none required surgical intervention, and each was discharged in good condition without complications. Follow-up LS were performed in four, demonstrating resolution of the defects; the remainder were followed on clinical grounds alone, with no adverse sequelae.

Using chi-square analysis, the group with a positive LS was compared to that with a normal LS in regard to age, sex, and mechanism of injury; no significant differences were identified. However, several clinical and serologic factors unique to patients found to have a positive LS were identified and deserve further mention.

JEFFREY CANOSE, M.D., Resident in Anesthesia, University of Connecticut School of Medicine, Farmington, CT. DONALD R. BECKER, M.D., Director of Surgery, Saint Francis Hospital and Medical Center, Hartford, CT; Professor of Surgery, University of Connecticut School of Medicine. JOHN J. FERRARA, M.D., Assistant Professor of Surgery, University of South Alabama School of Medicine, Mobile, AL.

Clinical Complexity Score (CCS)

Upon presentation, all patients received a thorough physical examination and chest radiograph. A CCS was generated for each by awarding one "point" for each of the following: 1) right upper quadrant and/or epigastric tenderness, 2) palpable right subcostal mass or an enlarged liver to percussion, 3) right-sided pleural effusion, and 4) elevated right hemidiaphragm. Using chi-square analysis, a CCS of three or greater was indictive of a statistically significant probability that the associated LS was positive (Figure 1). Only one patient with a positive LS had a CCS less than three; similarily, only one with a negative LS had a CCS of three or greater.

CCS LS	0	1	2	3	4	
+	0	1	0	3	4	8
−	25	10	1	1	0	37
	25	11	1	4	4	45

$X^2=34.4$ df=4
P<0.005

Figure 1

With a CCS of at least three, there is a statistically significant probability of having a positive LS. Thus, the CCS has a sensitivity of 88% and a specificity of 97%.

Serum Transaminase Levels

Serum GOT (normal < 24 IU/dl) and GPT (normal < 20 IU/dl) were obtained upon initial evaluation in all patients later found to have a positive LS and in 32 with a negative LS. While serum levels three times normal were not predictive of a positive LS, those who presented with levels at least five times normal had a statistically significant probability of a positive finding on LS (Figure 2). Note however, that three patients with enzyme levels less than five times normal had positive LS and that seven with enzyme levels above five times normal had a negative LS.

Liver Enzymes LS	<5X normal	>5X normal	
+	3	5	8
−	25	7	32
	28	12	40

$X^2=5.0$ df=1
P<.05

Figure 2

With serum transaminase levels at least five times normal, there is a statistically significant probability of having a positive LS.

Discussion

Recent technologic improvements in critical care and in radiographic imaging have altered many principles regarding management of the blunt abdominal trauma victim. There remains little alternative to abdominal exploration in a patient who is unstable secondary to intraabdominal hemorrhage. However, the advances mentioned above have been used with increasing frequency to "stabilize and study" certain blunt trauma victims. In so doing, surgeons have found that certain organ injuries once thought to mandate exploration could be safely observed; an example of this is the subcapsular and/or intrahepatic hematoma. Previously thought almost universally to require exploration and debridement,[2] this was challenged in the late 1960's when colloidal gold liver scintigraphy was established as a simple, quick, low risk procedure in the diagnosis of liver injury.[3] Further experience with LS resulted in several reports demonstrating its reliability.[4-6] While at least initially, a positive LS was often confirmed by hepatic angiography[7,8] or laparotomy[9] reports began to appear regarding successful noninvasive management.[1,6,10] Angiography was gradually relegated to 1) a diagnostic tool when LS was equivocal, 2) a therapeutic maneuver for control of bleeding arterial branches in attempt to forestall surgery, as reported by Lambeth and Rubin.[7]

As experience with observation of this type of injury increased, several potential problems arose, the first being a concern for "delayed rupture" of the liver hematoma. Geis[11] reported four patients in which this did in fact occur, all within one month of injury. However, two were on anticoagulant therapy at the time of injury. Excluding such circumstances, long-term follow-up studies[1,10] have confirmed the relatively low probability that this complication will occur. Nonetheless, close short and long-term follow-up were recommended.

A second concern, documented by Turrill[2] and Geis,[11] involved the possibility of abscess formation in devitalized liver tissues. While both investigators comment that this is a rare complication, it surely must be kept in mind during the initial month of observation. These investigators noted that clinical deterioration became evident in all of their patients, leading to the diagnosis of hepatic sepsis followed by subsequently successful surgical intervention.

Finally, there appeared to be a lack of characteristics unique to the trauma victim which, if present, should generate suspicion of liver injury and warrant LS. Up to the present, a myriad of clues have been reported to be helpful in this regard. Geis[11] noted that the combination of a palpable mass and a history of direct blunt trauma to the liver (as opposed to deceleration injury) should raise one's clinical suspicion. Cheatham[1] found that serum GOT was elevated in all patients with a positive LS though he was unable to determine its value as either a sensitive or specific marker. These authors therefore support the majority opinion that the most important factors in determining which patients should undergo LS are high index of suspicion and repeated clinical examination.

The findings from the present study support the belief that, under appropriate circumstances, the subcapsular and/or intrahepatic hematoma that occurs secondary to blunt abdominal trauma can successfully be treated in nonoperative fashion. All eight patients in the present series were so managed, without complication; uneventful outpatient follow-up lends credence to the minimal risk of delayed complications.[12] However, close observation remains mandatory: 1) to assure that a heretofore unrecognized injury to other abdominal viscera has not occurred, 2) to assure that continued or secondary hemorrhage is not threatening either life itself or remaining viable liver from expansion of the hematoma, 3) to monitor the patient for signs of clinical deterioration compatible with hepatic sepsis.

We also believe that, while a high index of suspicion should override any other data on the contrary, there are characteristics unique to the patient who has suffered blunt trauma with a high likelihood of significant liver injury. The most important of these, embodied by the clinical complexity score, are identified by a complete physical examination and a quality upright chest radiograph. We found that severe right subcostal tenderness, mass, right pleural effusion, and elevation of the right hemidiaphragm are fairly predictive of hepatic injury, mandating hepatic imaging, particularly if a course of nonoperative management is contemplated. Furthermore, elevation of liver transaminase levels to five times their normal value appears to be supportive of obtaining an hepatic imaging study. Experimental evidence for this is found in the work of Hellstrom,[13] who monitored SGOT and SGPT levels after subjecting the liver of dogs to direct blunt trauma. In contradistinction to skeletal muscle trauma (which caused no immediate rise in SGOT), progressively severe hepatic trauma correlated with increasing serum levels of SGOT/SGPT. Moreover, minor insults caused no microscopic evidence of hepatic bleeding though serum transaminase levels were consistently though mildly elevated. This fact is interesting since, in the present study, the population with a positive scan (indicating hemorrhage) could not be reliably separated from that with a negative scan on the basis of transaminase enzyme abnormalities at any level less than five times normal.

Finally, there is increasing evidence that computed abdominal tomography will play an ever increasing role in the evaluation of otherwise stable blunt trauma victims.[14] Its major advantages over LS include better resolution as well as the capability of examining additional intraabdominal and retroperitoneal viscera.[15] In this latter aspect, it is worth noting that 65% of patients with a positive LS and 43% with a negative LS had adjunctive imaging techniques that would have virtually been diagnostically eliminated by a CT scan. The rapidity with which this test can be completed in combination with its competitive cost now make it the procedure of preference at most institutions. It is nonetheless suspected that the same selection criteria encountered in this study will be applicable in determining whether a CT scan is indicated. Studies are now underway to test this hypothesis.

Taken as a whole then, it is suspected that careful examination, chest radiograph, and transaminase levels will be of predictive value in detecting which blunt trauma patients should be selected for hepatic imaging. Recall, however, that a lack of these characteristics should not deter one from obtaining LS if there remains a strong clinical index of suspicion. Finally, if injury is confirmed, many patients may be nonoperatively managed with minimal short and long term risk.

REFERENCES

1. Lutzker LG, Chun KJ. Radionuclide imaging in the nonsurgical treatment of liver and spleen trauma. J Trauma 1981, 21(5):382-386.
2. Turrill FL, Donovan AJ, Facey FL. Traumatic hepatic sequestra. Am J Surg 1971, 12:175-182.
3. Little R, McRae J, Smitananda N, Morris G. Radioisotope scanning of liver and spleen and upper abdominal trauma. Surg Gynecol Obstet 1967, 125(4):725-729.
4. Danzl DF, Berg BC Jr. Peritoneal lavage and scintigraphic evaluation of blunt abdominal trauma. JACEP 1977, 6(9):397-404.
5. Gilday DL, Alderson PO. Scintigraphic evaluation of liver and spleen injury. Seminars in Nuclear Medicine 1974, 4(4):357-370.
6. Karlsen RL, Nerdrum HJ, Solheim K. Radionuclide imaging in the diagnosis of liver trauma. Acta Chir Scand 1981, 147:395-397.
7. Lambeth W, Rubin BD. Nonoperative management of intrahepatic hemorrhage and hematoma following blunt trauma. Surg Gynecol Obstet 1979, 148:507-511.
8. Popovsky J, Wiener SN, Felder PA, Biramje A, Reydman M. Liver trauma. Arch Surg 1974, 108:184-186.
9. Evans GW, Curtin G, McCarthy HF, Kieran JH. Scintigraphy in traumatic lesions of liver and spleen. JAMA 1972, 222(6):665-667.
10. Cheatham JE, Smith EI, Tunell WP, Elkins RC. Nonoperative management of subcapsular hematomas of the liver. Am J Surg 1980, 140:852-857.
11. Geis WO, Schulz KA, Giacchino JL, Freeark RJ. The fate of unruptured intrahepatic hematomas. Surg 1981, 90(4):689-697.
12. Hellstrom G. The activity of glutamic-oxalacetic and glutamicpyruvic transaminases (GOT and GPT), ornithine-carbamoyltransferase (OCT) and alkaline phosphatase (AP) in serum in closed liver injury. Acta Chir Scand 1966, 131(6):476-484.
13. Squier R, Becker D, Ferrara JJ. Selective nonoperative management of subcapsular hematoma of the liver. Surgical Rounds Feb 1985, p 82-90.
14. Federle MP, Crass RA, Jeffrey B, Trunkey DD. Computed tomography in blunt abdominal trauma. Arch Surg 1982, 117:645-650.
15. Uthoff LB, Wyffels PL, Adams CS, Zwicky GF, Berg BC. A prospective study comparing nuclear scintigraphy and computerized axial tomography in the initial evaluation of the trauma patient. Ann Surg 1983, 198(5):611-616.

Sarcomas of the Kidney

PETER T. NIEH, M.D. AND JOSEPH F. CHANG, M.D.

ABSTRACT – Primary soft tissue sarcomas of the kidney are rare, with the reported incidence being 1% to 3% of malignant renal tumors. All soft tissue elements including fibrous, adipose, muscle, vascular and, bone may be encountered. They usually present in older females and have a fair prognosis if there is no distant metastasis at the time of diagnosis. Nephrectomy remains the management of choice.

We herein report six such cases managed over the last two decades. All were female and the mean age at presentation was 64.3 years. They presented with pain, mass, and hematuria, and more than half of them had retroperitoneal invasion or distant metastasis. All had nephrectomy for primary treatment.

While the mean survival was 3.2 years, one patient with leiomyosarcoma producing renal vein obstruction is alive 14 years after radical surgery with cava resection, representing the longest reported survivor with this disease.

The clinical manifestations, pathological classifications, and mode of management will be presented and discussed.

Primary sarcomas of the kidney are rare, representing approximately 1% to 3% of malignant tumors of the kidney.[1] These mesenchymal derived tumors may often be confused with primary retroperitoneal sarcomas because of the extensive nature of the latter often encompassing the kidney.

We report on six cases of primary sarcomas of the kidney encountered over the last two decades.

Materials and Methods

This retrospective study during the period of 1960-1980 consisted of 11 patients who had been collected from the Tumor Registry of Hartford Hospital from all patients registered under "kidney malignancies." Review of the original histopathologic specimens was performed. Five were excluded from the study – in one patient the incidental diagnosis was made at autopsy, in two patients the diagnosis was changed to hamartoma, and two "sarcomas" were in the lymphoma family (lymphosarcoma, reticulum cell sarcoma).

Most of the soft tissue sarcomas were represented in this series: leiomyosarcoma,[2] rhabdomyosarcoma,[1] myxoid liposarcomas,[1] carcinosarcoma,[1] osteogenic sarcoma.[1]

All six patients were female, presenting from age 59 to 69 (mean age 64.3). All were white with different occupations. The most common presenting symptom was a palpable abdominal or flank mass, with or without tenderness, seen in four patients. Two patients had hematuria and two presented with abdominal or flank pain as the initial chief complaint. Dysuria, nausea, and vomiting were also mentioned.

The patient with osteogenic sarcoma had a high white blood cell count of 28,400 with a non-functioning right kidney on intravenous pyleogram (IVP). Most patients had a renal mass on IVP, and only two patients underwent angiography. One patient with myxoid liposarcoma showed a hypovascular mass and one patient with leiomyosarcoma also had obstruction of the inferior vena cava. The patient with carcinosarcoma showed a calcified renal mass on KUB. Two of the six patients had pulmonary metastases visible on chest x-ray.

All patients underwent nephrectomy as primary management for localized disease, and as palliation of local symptoms for metastatic disease. None of these patients received postoperative adjuvant chemotherapy or radiotherapy.

The mean survival of the five patients, other than the patient who died in the early postoperative period, was 3.2 years. Of the three patients with metastases, one died on the fourth postoperative day, one died of disease in six months, and one patient with leiomyosarcoma and mediastinal mass died of acute myocardial infarction at one year. Two patients are still alive and well – the patient with myxoid liposarcoma and retroperitoneal involvement is six years post-nephrectomy, and the patient with leiomysarcoma and caval obstruction is 14 years post-radical nephrectomy and cava resection.

Discussion

Sarcomas were first described in Egypt's "Edwin Smith

PETER T. NIEH, M.D., Associate Professor of Urology, University of Connecticut School of Medicine, Farmington, CT. JOSEPH F. CHANG, M.D., Former Chief Resident in Urology, Hartford Hospital, Hartford, CT and the University of Connecticut Health Center, Farmington, CT.

Papyrus" in 3000 B.C., but little was added until after the discovery and use of the microscope.[2] In the early 18th and 19th century, improvements in microscopy and histologic techniques, and the awareness of the embryonic development of the different germ layers, permitted the evolution of a modern classification scheme for mesenchymal tumors. Before Berry reported the first case of leiomyosarcoma in 1919, most malignant tumors of the kidney were classified as sarcomas. All elements of mesenchyme including fibrous, adipose, muscle, vascular, and bone tissue can be seen.

In Farrow's series of renal sarcomas, there was a male predominance and a mean age of 52 years.[3] They presented with flank pain, abdominal mass, fatigue, and malaise. A palpable flank mass was noted in 20 of the 26 patients, with an equal tendency to occur in either kidney. More than 50% were localized to the renal capsule. The aggressiveness of the sarcomas was reflected in the mortality of 21 of the 26 patients from their tumors. The tumor grade was probably the best histologic criterion of malignancy. Those tumors which invaded adjacent structures offered a poorer prognosis than those confined to the kidney.

Local recurrence rates are quite high with sarcomas, because, despite the grossly circumscribed margins, there is often extensive microscopic involvement along fascial planes and nerve bundles.[4] Traditional five year cure rates are unreliable, as even the slow growing tumors have a high rate of distant metastases eventually.

The typical angiographic appearance is that of a hypovascular mass with capsular feeding vessels and less prominent AV shunting, contrast pooling, and tumor blushing than seen with renal cell carcinoma.[5] However, these are not pathognomic findings, and the differential diagnosis remains renal cell carcinoma, transitional cell carcinoma of the renal pelvis, metastatic carcinoma, lymphoma, or xanthogranulomatous pyelonephritis.

The most commonly reported cases early on were "spindle cell sarcoma" or fibrosarcoma. With improvement of histochemical techniques and a better understanding of mesenchymal derived tumors, the diagnosis of fibrosarcoma of the kidney is now rare.[1,6] Farrow reviewed 2,386 malignant tumors of the kidney in adults at the Mayo Clinic over a period of 60 years and did not report any fibrosarcomas.[3]

Leiomyosarcoma is the most common sarcoma of the kidney, accounting for 15 of the 26 sarcomas reported by Farrow.[3] Leiomyosarcoma incidence increases in frequency with advancing age, and the majority have been reported in women.[1] They are felt to originate from smooth muscle elements of the renal capsule, renal pelvis, or parenchymal vessel wall. In Farrow's series, 14 of the 15 patients died of their tumor in four months to 5-1/2 years. The one survivor was alive six years postoperatively. Our patient with leiomyosarcoma invading the renal vein, vena cava, and proximal ureter is alive without disease 14 years after aggressive surgery, representing the longest surviving case to be reported.

While the most common sarcoma of the retroperitoneum, liposarcomas account for less than 20% of primary renal sarcomas.[3] About 1/3 of previously reported liposarcomas are associated with tuberous sclerosis, and are now classified as angiomyolipoma.[7] Our patient with a myxoid liposarcoma, who presented with abdominal pain, mass and dysuria, is still alive at six years follow up.

The other patients, all with local invasion or distant

Table 1

SUMMARY OF 6 PATIENTS

Patient Age, Race, Sex	*Presenting Symptoms and Signs*	*Radiologic Findings*	*Pathology and Clinical Stage*	*Management*	*Follow Up*
1. N.H. 59 W.F.	Abdominal pain Dysuria Flank mass	Angio- Hypovascular upper pole mass	Myxoid Liposarcoma	Left Nephrectomy	Alive, Well 6 Years
2. R.C. 69 W.F.	Abdominal pain Nausea, Vomiting Tender flank mass	KUB-Calcified renal mass CXR-Pul. Mets	Carcinosarcoma Mets to lung	Right Nephrectomy	Dead 4th Day p-op
3. B.M. 67 W.F.	Abdominal mass	Liver-Spleen Scan-Liver mets.	Rhabdomyo-Sarcoma Mets. to liver	1. Right Nephrectomy 2. Laparatomy for Recurrence-Colon and Retroperitoneum	Dead 3 months
4. B.J. 62 W.F.	Hematuria Abdominal pain	Angio and Cavogram-Caval obstruction	Leiomyosarcoma with Caval Obstruction	Right Nephrectomy and Resection of Cava	Alive, Well 14 Years
5. G.A. 63 W.F.	Abdominal mass	CXR-Mediastinal mass	Leiomyosarcoma	Right Nephrectomy	Dead (MI) 1 Year
6. B.M. 66 W.F.	Hematuria Right hip pain WBC: 28,400	IVP-Nonfunction right kidney ?Right ureteral tumor	Osteogenic Sarcoma	Right Nephro-Ureterectomy	Dead 6 Months

metastases from carcinosarcoma, rhabdomyosarcoma, and osteogenic sarcoma, died of disease in three months to one year. One patient died during the immediate postoperative period.

While radiation therapy has been somewhat effective for sarcomas of soft tissue,[8] few patients with renal sarcomas appear to benefit from adjuvant radiotherapy.[9] Systemic chemotherapy has provided limited success in palliating patients with metastatic disease.[9,10] Although our small series did not involve adjuvant radiation or chemotherapy, the role of aggressive surgery in locally extensive lesions is well demonstrated.

In summary, sarcomas of the kidney may be of several different types. All are rare, highly malignant, and carry a poor prognosis. Usually they attain great size with compression and distortion of the renal pelvis and calyces recognizable on IVP. Angiography is not reliable in distinguishing this from renal cell carcinoma. A thoracoabdominal or transabdominal approach for radical nephrectomy and wide excision of local extension is usually indicated. While these are locally invasive and difficult to eradicate completely, long term survival is achievable with aggressive surgery in the absence of distant metastases as demonstrated by our patient with leiomyosarcoma who survived 14 years without disease. The value of radiation therapy, chemotherapy, or immunotherapy is not well-established in controlling local recurrences or diminishing distant metastases.

REFERENCES

1. Bennington JL and Beckwith JB. Tumors of the kidney, renal pelvis and ureter, Washington, DC, Armed Forces Institute of Pathology 2nd Series fasc 12, 1975, pp 201-241.
2. Sears HF. Soft tissue sarcoma: A historical overview. Seminars in Oncology 1981, 8:129.
3. Farrow MG, Harrison EG, Utz DC and ReMine WH. Sarcomas and sarcomatoid and mixed malignant tumors of the kidney in adults—part 1. Cancer 1968, 22:545-550.
4. Enterline HT. Histopathology of sarcomas. Seminars in Oncology 1981, 8:133-155.
5. Granmayeh M, Wallace S, Barrett AF, Fisher R and Heslep JH. Sarcoma of the kidney: angiographic features. Am J Roentenol 1977, 129:107-112.
6. Kansara V and Powell I. Fibrosarcoma of kidney. Urology 1980, 16:419.
7. Williams JP and Savage PT. Liposarcoma of the kidney. Br J Surg 1958, 46:225-231.
8. Carabell SC and Goodman RL. Radiation therapy for soft tissue sarcoma. Seminars in Oncology 1981, 8:201.
9. Helmbrecht LJ and Gosgrove MD. Triple therapy for leiomyosarcoma of kidney. J Urol 1974, 112:581.
10. Merrin CE. Renal Neoplasms in: Javadpour N (ed). Principles and Management of Urologic Cancer, Baltimore: Williams & Wilkins, Co. 1979. pp 398-399.

AYR INSURANCE AGENCY, INC.

Sponsored by
The Connecticut State Medical Society

Disability Income Insurance
Hospital, Surgical & Major Medical Insurance
Office Overhead Expense Insurance
Term Life Insurance

"Growing Bigger by Serving Better"

Alison Ayr — David Gould
J. Lauren Ayr — William Harrington

105 Sanford Street, Hamden, CT 06514
Telephone 288-4302

Important Advances in Clinical Medicine

Epitomes of Progress—General and Family Practice

The Scientific Board of the California Medical Association presents the following inventory of items of progress in general and family practice. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in general and family practice that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on General and Family Practice of the California Medical Association and the summaries were prepared under its direction.

Genital Herpes Infections

The number of genital herpes infections has increased dramatically over the past decade. With an estimated 300,000 new cases and 9 million recurrences per year, herpes may, in fact, be the most prevalent of all sexually transmitted diseases.

Herpes simplex virus (HSV) type II is the agent chiefly responsible for genital infections, although type I is present in a small percentage of cases. The infection is usually transmitted by sexual contact with someone who has active disease. In some situations, the infection may be a reactivation of the virus from a quiescent phase following a previous infection. Apparent but not well-understood triggers of the reactivation process include emotional distress, menstruation and pneumococcal and meningococcal infections.

Herpes genitalis can usually be diagnosed by history and physical examination alone. Several days after sexual contact with an infected partner, a person may have local symptoms of discomfort and systemic symptoms of fever, headache, myalgias and groin adenopathy. The herpetic lesion that appears progresses from a papule initially to a vesicle and then an ulcer that usually heals without scarring. Unfortunately, although most recover uneventfully from the primary episode, more than two thirds of those infected typically have more than five recurrences per year.

Viral culture remains the method of choice for confirming the presence of genital herpes infections. Antigen testing using fluorescein-immunoperoxidase assay methods alone have improved but are not yet readily available. The Tzanck cell test and Papanicolaou test can be done in office but have low sensitivity and specificity. Serologic testing has not proved to be practically useful.

The management of genital herpes is palliative rather than curative. Topical acyclovir may be used to reduce symptoms of a first episode. Acyclovir may be given orally to treat initial episodes (200 mg five times a day for ten days) or individual recurrences (200 mg five times a day for five days). If a person has at least six to eight recurrences per day, suppression therapy may be indicated (200 mg three times a day for as long as six months). Continuous treatment beyond six months has not yet proved safe or effective.

For those pregnant women who have a history of herpes genitalis or known exposure, cervical cultures are done weekly late in the third trimester. If HSV is detected within two weeks of delivery and membranes have been ruptured less than four hours, a cesarean section is recommended. About 40% to 80% of infants born through an infected birth canal are affected and face a mortality rate of 60%.

Kathryn M. Larsen, M.D.
Irvine, California

REFERENCES

Binkin NJ, Koplan JP, Cates W Jr: Preventing neonatal herpes—The value of weekly viral cultures in pregnant women with recurrent genital herpes. JAMA 1984, 251:2816-2821.

Douglas JM, Critchlow C, Benedetti J, et al: A double-blind study of oral acyclovir for suppression of recurrences of genital herpes simplex

---

Reprinted from *The Western Journal of Medicine*, November 1986.

virus infection. N Engl J Med Jun 1984, 310:1551-1556.

Straus SE, Rooney JF, Sever JL, et al: NIH Conference—Herpes simplex virus infection: Biology, treatment, and prevention. Ann Intern Med Sep 1985, 103:404-419.

Exercise Prescription

Exercise prescription is in the process of rapid growth and redefinition. Until recently, the term "exercise prescription" has been thought by many to be synonymous with "aerobic exercise prescription," largely through the pioneering work of Kenneth Cooper and others. The basic requirement for maintaining aerobic fitness is to achieve 70% of the predicted maximal heart rate for 10 to 15 minutes three times a week. This concept has been widely accepted. Exercise physiologists and physical therapists have called for an expansion of this concept to exercise prescription. They have recommended that strength, flexibility and coordination training should be a part of any exercise prescription.

Strength training is exercise that increases muscular strength. Low-weight, high-repetition strength exercises for general fitness are now recommended. Low-weight, high-repetition exercises are exercises that can be done for 10 to 15 repetitions using free weights or machines before the onset of muscular fatigue. The advantage of low-weight, high-repetition exercise is that it is nearly as effective as high-weight, low-repetition exercise (exercise where muscular fatigue sets in with only a few repetitions) in strength gain, but it does not predispose to significantly high elevations in blood pressure, as does high-weight, low-repetition exercise.

Flexibility training, or muscle stretching before and after exercise, has been much discussed but little studied. A systematic stretching program ten minutes before and after exercise, however, is recommended as part of every exercise prescription.

Coordination training is conceptually the most complex part of exercise prescription. Globally, it is the practice of sports-specific techniques that enhance neuromuscular coordination with the goal to prevent injury. Charles Henning, MD, Clinical Associate Professor of Orthopedics at the School of Medicine, University of Kansas Medical Center, has data showing that a series of practice techniques has decreased the incidence of anterior cruciate ligament injuries in school athletics in his community. Teaching athletes how to fall safely, decelerate, pivot and change direction while running are examples of Henning's techniques.

The "fitness boom" is a popular trend in American culture. Many family physicians are being called upon by patients to "prescribe exercise." Exercise prescription should include aerobic, strength, flexibility and coordination training techniques. Consequently, family physicians need to know that exercise prescription, when properly given, will lead to the long-term goals of promoting health and preventing injuries.

Jeff Tanji, M.D.
Sacramento, California

REFERENCES

American College of Sports Medicine: Guidelines for Graded Exercise Testing and Exercise Prescription. Philadelphia, Lea & Febiger, 1980.

Pollock ML, Wilmore JH, Fox SM: Exercise in Health and Disease. Philadelphia, WB Saunders, 1984.

Ultrasound in Obstetrics—Safety Considerations

Ultrasound has become so commonplace in obstetrical practice that it is almost routine. The 1984 consensus statement of the National Institutes of Health listed 27 indications for diagnostic ultrasound imaging in pregnancy. With the use of Doppler ultrasound to detect fetal heart tones, imaging ultrasound and ultrasonic devices for external fetal monitoring, most pregnant women will have multiple exposures to ultrasound. Many pregnant women wonder whether ultrasound is completely safe in pregnancy, and some refuse its use based on a fear of risk to the infant.

The bioeffects of ultrasound have been extensively studied. Ultrasound energy can cause tissue damage by two known mechanisms—heat and cavitation. The intensity of ultrasound required to cause these effects in humans is not achieved in commercially available devices used in pregnancy. Also, most of the ultrasound-produced heat is absorbed by a mother's tissues and does not reach the fetus. Hence, after analyzing experiments on ultrasound effects, the National Counsel on Radiation Protection has reported that currently available imaging and Doppler ultrasound devices are safe in pregnancy.

Some authors still express caution about the indiscriminate use of ultrasound in pregnancy. They state that all possible biologic effects may not be known and that a large enough epidemiologic study to detect injury in 1 in 5,000 infants (the estimated chance of leukemia in a fetus exposed to x-rays) has not been done. Such uncertainty prompts the International Childbirth Education Association to request that informed consent be given by pregnant women before exposure to ultrasound. While a formal procedure for consent may not be necessary, physicians should discuss the use of ultrasound with their patients and limit its usage to situations in which the information obtained is important in managing the pregnancy.

Joseph E. Scherger, M.D.
Davis, California

REFERENCES

Biological Effects of Ultrasound: Mechanisms and Clinical Implications, NCRPM Report No 74. Bethesda, Md, National Council on Radiation Protection and Measurement, 1984.

Diagnostic Ultrasound Imaging in Pregnancy, National Institutes of Health Consensus Statement, Vol 5, No 1. Bethesda, Md, Department of Health and Human Services, 1984.

Mole R: Possible hazards of imaging and doppler ultrasound in obstetrics. Birth Mar 1986, 12:29-38.

O'Brien WD Jr: Ultrasonic bioeffects: A view of experimental studies. Birth 1984, 11:149-157.

Petitti DB: Effects of the in utero ultrasound exposure in humans. Birth 1984, 11:159-163.

Maternal Serum α-Fetoprotein Screening

A recent California law, administered by the Department of Health Services, mandates all prenatal care providers to offer maternal serum α-fetoprotein (MS-AFP) testing, with appropriate informed consent, to all patients during the 15th to 20th week of gestation. This law reflects the acceptance of many authorities of the MS-AFP test as a well-established screen for certain birth defects and it parallels an official recommendation by the American College of Obstetricians and Gynecologists. It therefore seems prudent that all family physicians practicing obstetrics understand the basic premises, limits and implications of MS-AFP screening.

Neural tube defects occur in about one in every thousand live births and are the cause of fetal and infant death and serious handicaps in survivors. Prenatal diagnosis by amniocentesis and elective abortion for expectant mothers with a known family history of neural tube defects have been available for years and are based on leakage of AFP through the open fetal defect. Of infants with such defects, however, 90% to 95% are the first affected child in a family; therefore, the discovery that AFP could be measured in maternal serum led to a simpler screen.

A large number of prospective studies have shown high sensitivity (95%) for anencephaly and slightly lower sensitivity (70% to 75%) for open spina bifida. In addition, a recent discovery that lowered levels of MS-AFP are correlated with the Down syndrome (20% to 40% sensitivity) now allows screening for women younger than 35 years.

Despite its high sensitivity for neural tube defects, the MS-AFP test has a very poor specificity because it is estimated that 8% of women tested will have a positive result, but 6% of these will actually have a fetal abnormality or pregnancy complication diagnosed—that is, 94% false-positives. Follow-up evaluation of a positive test includes repeat testing, ultrasonography and, finally, amniocentesis and is best handled by referral to perinatal specialists. Problems associated with a positive result, other than neural tube defects, include twin gestation, miscalculated gestational age, ventral wall defects (omphalocele and gastroschisis), increased risk of fetal loss and low birth weight. It is hoped that early recognition of these may also prove beneficial.

Family physicians should accurately inform their patients of the above information, make appropriate referrals if a positive result occurs and, most important, be ready and available to offer emotional support to a patient in deciding whether to undergo screening, dealing with a positive screening result and dealing with the follow-up process and its ultimate result.

Berthold E. Umland, M.D.
Albuquerque
Kenneth W. Patric, M.D.
Sacramento, California

REFERENCES

Annas GJ: Is a genetic screening test ready when the lawyers say it is? Hastings Cent Rep Dec 1985, 15:16-18.

Davis RO, Cosper P, Huddleston JF, et al: Decreased level of amniotic fluid α-fetoprotein associated with Down syndrome. Am J Obstet Gynecol Nov 1985, 153:541-544.

Milunsky A, Alpert E: Results and benefits of a maternal serum alphafetoprotein screening program. JAMA Sep 21 1984, 252:1438-1442.

Handbook for Prenatal Care Providers, The California Alpha Fetoprotein Screening Program. Berkeley, Calif, California Department of Health Services, Genetic Disease Branch, 1986.

Passive Smoking

Although the health risks of smoking have been known for decades, the dangers of passive (involuntary) smoking have come to light relatively recently. The measurement of plasma, urine and saliva cotinine concentrations has provided us with an accurate and reproducible method of assaying the quantity of tobacco smoke passively inhaled. Through this method, it has been estimated that in a home in which only the father smokes, a child inhales the equivalent of 30 “actively” smoked cigarettes per year. If only the mother smokes, the child inspires the equivalent of 50 actively smoked cigarettes per year and, if both parents smoke, the child smokes 80 cigarettes a year.

Therefore, it is not surprising that the health risks of passive smoking are substantial, particularly in the very young. A number of studies have found decrements in pulmonary function among children of smoking parents as compared with children of nonsmoking parents. Similar studies have found increased rates of bronchitis, pneumonia, persistent middle ear effusion and sudden infant death in children of parents who smoke. There is also some concern that parental smoking may diminish childhood growth but, to date, the data are conflicting.

Adults are not spared the health hazards of passive smoking. Studies have related passive smoking to small airways dysfunction, decreased exercise performance, lung cancer and ischemic heart disease. Passive smoking appears to lower the exercise threshold necessary to produce chest pain in patients with angina pectoris and may trigger asthmatic attacks in some patients who suffer from asthma.

Unlike active smoking, passive smoking largely harms people who choose *not* to smoke; therefore, smokers who cannot relinquish the habit must be educated about the risks of passive smoking and instructed to smoke outdoors or in an area in which other people are unlikely to breathe tobacco smoke. Because the hazards of passive smoking appear to be greatest for children younger than one year of age, this recommendation should be strongly reinforced for parents and those planning a pregnancy.

William A. Norcross, M.D.
Lee M. Vogel, M.D.
San Diego

REFERENCES

Garland C, Barrett-Connor E, Suarez L, et al: Effects of passive smoking on ischemic heart disease mortality of nonsmokers—A prospective study. Am J Epidemiol May 1985, 121:645-650.

Harlap S, Davies AM: Infant admissions to hospital and maternal smoking. Lancet Mar 30 1974, 1:529-532.

White JR, Froeb HF: Small-airways dysfunction in nonsmokers chronically exposed to tobacco smoke. N Engl J Med Mar 27 1980, 302:720-723.

Urinary Tract Infection in Geriatric Patients

The increasing prevalence of significant bacteriuria with advancing age is of major concern to family physicians caring for geriatric patients. The rate is about 20% in the general ambulatory population aged 65 years and older and rises to 35% to 50% for those confined to hospitals. Possible reasons for this high prevalence in the elderly include obstructive uropathy, decrease of antimicrobial secretions from the prostatic gland, increased amounts of postvoiding residual urine due to prostatic hypertrophy and pelvic floor relaxation, fecal incontinence and soiling in women and a greater likelihood of indwelling catheterization.

The diagnosis of urinary tract infection in all age groups is based on quantitative urine cultures of clean-catch midstream specimens. A "positive" culture is one that grows 10^5 organisms or more per milliliter of urine. One clean-catch urine specimen has an 80% probability of being correctly identified as having significant bacteriuria. Two specimens growing the same organism have a 95% probability, while three specimens are nearly 100% accurate. Proper collection of the urine specimen depends on the individual patient and the adequacy of instructions. While the urine culture is considered the gold standard for diagnosing urinary tract infections, other tests are also available. These include routine urine analysis, Gram's staining, chemical analysis (leukocyte esterase and nitrite) and "dipslide" (Isocult or Uricult) of the urine. The results of these tests are subject to the same influences (urine concentration, collection, handling and preparation) as the urine culture, but have less sensitivity and specificity.

The most common infecting organisms are aerobic Gram-negative bacilli from the gut. *Escherichia coli* cause about 80% of urinary tract infections in the elderly. Another 10% to 15% of infections are caused by *Proteus, Klebsiella* and *Enterobacter* organisms; the remaining 5% to 10% are due to such pathogens as *Pseudomonas*, staphylococcal organisms and group D streptococci.

Urinary tract infections in the elderly may include the traditional symptoms of frequency, dysuria, hesitancy, urgency and nocturia. But acute confusional state, mental state changes or incontinence may also be the presenting complaints. Moreover, most of these infections in older adults are asymptomatic. Because bacteriuria in older adults has been associated with an increased mortality rate, these diagnostic screening methods are of clinical importance.

The management of asymptomatic bacteriuria in the elderly is subject to debate and is under further investigation. Limited treatment trials with antibiotics for asymptomatic bacteriuria in geriatric patients have had high recurrence rates. On the other hand, any geriatric patient with symptomatic bacteriuria (bacteriuria and symptoms of infection) should be treated. Current treatment recommendations include 7 to 14 days of therapy with a safe, nontoxic, easily filtered drug such as the penicillins, cephalosporins, shortacting sulfonamides, tetracycline, trimethoprim or trimethoprim-sulfamethoxazole after the infectious agent is identified by urine culture. While single-dose and short-course antibiotic regimens have been therapeutically effective in healthy young women with uncomplicated lower urinary tract infections, this approach in the elderly has had unacceptably high rates of failure in recent studies. When bacteremia may be present, parenteral therapy with antibiotics such as aminoglycosides and cephalosporins should be used. After the pathogen is identified, the regimen can be changed to a safer appropriate drug. Elderly patients with structural abnormalities of the urinary tract, such as calculi, or chronic bacterial prostatitis may become reinfected, usually within one to two weeks. These patients who quickly relapse need to be evaluated further. If no structural abnormalities are found, then a three-to-six-week course of therapy is recommended.

Long-term prophylactic therapy with trimethoprim (alone or in combination with sulfamethoxazole) for frequent symptomatic reinfection has been used successfully; urine cultures, however, should be done frequently and the antibiotic changed if bacteriuria recurs. Patients with indwelling catheters should have periodic urine cultures to identify the current infecting organism. Extended chemoprophylaxis for this group of patients does not prevent infection and risks drug-resistant sepsis.

Klea D. Bertakis, M.D., MPH
Sacramento, California

REFERENCES

Bendall MJ: A review of urinary tract infections in the elderly. J Antimicrob Chemother May 1984, (Suppl 13):69-78.

Brocklehurst JC, Dillane JB, Griffiths L, et al: The prevalence and symptomatology of urinary tract infection in an aged population. Gerontol Clin 1968, 10:242-253.

Nordenstam GR, Brandberg CA, Oden AS, et al: Bacteriuria and mortality in an elderly population. N Engl J Med May 1986, 314:1152-1156.

Yoshikawa TT: Important infections in elderly persons. West J Med Dec 1981, 135:441-445.

Assessing the Fetal-Placental Unit

Many common complications of pregnancy, notably, gestational diabetes, pregnancy-induced hypertension and postmaturity, adversely affect the placenta and thereby place a fetus's ability to tolerate labor in jeopardy. Over the past two decades, numerous techniques have evolved for assessing the status of the fetal-placental unit; yet, until recently these techniques have often been costly, cumbersome and time-consuming.

Maternal urine or serum estriol determinations are sensitive predictors of fetal-placental function. Their appropriate use, however, requires serial determinations, often over a period of several days or weeks, and can incur considerable expense. Oxytocin contraction testing also is a reliable predictor of fetal-placental function, yet the need for intravenous administration of medication makes this process technically cumbersome. Non-stress testing, which has generally supplanted the oxytocin contraction testing as an initial screening device, is a reasonable predictor of fetal well-being but may less reliably predict fetal-placental function, particularly during the stress of labor. Maternal perception of fetal movement has long been recognized as an indicator of fetal well-being, and there have been recent efforts to develop fetal movement count protocols. Such counts are best used as a qualitative screening assessment with other more quantitative techniques used to more precisely assess fetal status.

Two more recently developed screening techniques appear to provide rapid and accurate assessment of fetal-placental function. Ultrasonic determination of amniotic fluid volume is one such technique. While the volume of amniotic fluid normally diminishes as the pregnancy approaches term, a finding of significant oligohydramnios is a specific predictor of poor placental function, particularly in a postmature pregnancy. It appears also that the presence of spontaneous fetal respirations detected on real-time ultrasound is predictive of fetal well-being.

Mammary self-stimulation contraction stress testing is a second new technique for assessing fetal-placental function. Breast self-stimulation can safely produce sufficient oxytocin secretion to stimulate contractions that satisfy standard criteria for a contraction-stress study. The test, effective in about 60% of women, is rapid—generally requiring less than half the time of a standard oxytocin contraction test—reliable and well accepted by patients.

Michael D. Prislin, M.D.
Irvine, California

REFERENCES

Hausknecht RU: Estriol and fetal health. Obstet Gynecol Nov 1967, 30:639-645.

MacMillan JB, Hale RW: Contraction stress-testing with mammary self-stimulation. J Reprod Med Apr 1984, 29:219-221.

Pratt D, Diamond F, Yen H, et al: Fetal stress and non-stress test: An analysis and comparison of their ability to identify fetal outcome. Obstet Gynecol 1979, 54:419-423.

Rayburn WF, Motley ME, Stempel LE, et al: Antepartum prediction of the postmature infant. Obstet Gynecol 1982, 60:148-153.

Sorokin Y, Dierker LJ Jr: Fetal movement. Clin Obstet Gynecol 1982, 25:719-734.

Tuberculosis in Nursing Homes

Even though the incidence of tuberculosis for all ages has declined yearly since before 1900, elderly persons now account for the largest proportion of tuberculosis cases of any age group. The predominance of cases in the elderly has been attributed to reactivation of previous infections that occurred when tuberculosis was much more prevalent. The high incidence in the elderly cannot be explained by the increase in the proportion of people in the population older than 65. Factors contributing to this problem include the delay of diagnosis due to atypical clinical presentations of reactivated infections and impaired immunologic responsiveness associated with advancing age and many chronic diseases.

Stead and co-workers have shown that newly acquired cases of tuberculosis can occur in nursing homes. There have been several reports of tuberculosis epidemics among residents of nursing homes, and the predisposing factor has been close living quarters that allows dissemination. Stead showed that in Arkansas 10% to 15% of persons newly admitted to nursing homes reacted positively to a two-step tuberculin skin test, a rate much lower than expected for this age group. Among patients already living in nursing homes, the prevalence jumped to 20.8%, with a rate of conversion proportional to the duration of residence.

Tuberculosis control in nursing homes is based on the principles of surveillance and containment. Preadmission screening with tuberculin skin tests and chest roentgenograms is preferable. Tuberculin skin testing should be done using a two-step protocol because some patients whose skin tests are initially negative will subsequently react positively to a second skin test due to a "booster" immunologic response. The results of the first test are read at one week, with 10 mm induration or more considered positive. If negative at one week, another skin test is applied and read at 48 to 72 hours. If the chest roentgenograms are normal and the two-step tuberculin tests are negative on admission, a patient should be retested yearly using the two-step tuberculin test. For any resident in whom a chronic cough develops that is not explained by other acute illnesses, three early morning sputum specimens should be examined for *Myobacterium tuberculosis*. Those who have converted from a negative to a positive skin test should have a chest roentgenogram and, if coughing, a sputum examination.

Stead showed that preventive therapy with isoniazid (INH) effectively decreases the incidence of active tuberculosis in nursing homes. Preventive therapy with isoniazid in a daily dosage of 300 mg should be considered for all patients whose skin tests are positive and who are without documented active disease or recent antituberculous drug therapy. The recommendation for duration of therapy is currently 6 to 12 months in compliant patients.

Elderly patients should be followed closely for signs and symptoms of isoniazid-induced hepatitis, and serum aspartate aminotransferase (AST, or SGOT) levels should be monitored before and periodically during treatment. If the AST level increases more than three to five times baseline levels, the isoniazid therapy should be discontinued. Patients receiving preventive therapy should also be followed for vitamin B_6 deficiency. As always, active cases of tuberculosis should be treated aggressively with multiple antituberculous drugs and the sputum checked periodically for *M. tuberculosis*. Treatment of active cases should continue for at least six months.

Robert L. Rhyne, M.D.
Robert F. Thompson, M.D.
Albuquerque

REFERENCES

Joint Statement by the American Thoracic Society and the Centers for Disease Control: Control of tuberculosis. Am Rev Respir Dis 1983, 128:336-342.

Joint Statement by the American Thoracic Society and the Centers for Disease Control: Treatment of tuberculosis and tuberculosis infection in adults and children. Am Rev Respir Dis 1986, 134:355-363.

Stead WW, Lofgren JP, Warren E, et al: Tuberculosis as an endemic and nosocomial infection among the elderly in nursing homes. N Engl J Med Jun 1985, 312:1483-1487.

Crisis Precipitation in Alcoholism

Alcohol abuse continues to have a devastating effect on the health of millions of Americans. Any significant change in the morbidity and mortality of alcohol abuse will require more effective interventions earlier in the course of the disease. The greatest single barrier to earlier treatment is a patient's denial of the problem. Many alcohol treatment programs are adopting an innovative approach to break through this denial. The success of this innovative approach could be enhanced by the primary care physician's knowledge and participation.

Called either "intervention," "confrontation" or "crisis precipitation," this approach operates on the assumption that problem drinking continues as long as an alcohol abuser perceives more benefit from drinking than from abstinence. Rather than waiting for this perception to reverse when the patient hits "rock bottom," with all the attendant health risks, the intervention technique offers a person with alcoholism a powerful preview of "rock bottom" to compare with the caring and support of significant persons in his or her life. This approach works best when the index patient still has some intact, meaningful, positive relationships with people who recognize alcohol abuse as a problem for the patient. These people—family, personal physician, employer, minister and friends—carefully rehearse the "intervention" meeting with each other and an alcoholism counselor. The rehearsals are crucial to ensure that all concerned can confront the alcohol abuser with certainty, consistency, compassion and caring. The goal is to avoid criticism, blaming and coercion and to present treatment as an option that is chosen with dignity and self-respect.

When "rehearsals" are finished and all logistic barriers to beginning treatment have been considered, some pretext is arranged to get the alcoholic person to a place where all the key persons have assembled. Each person in turn discusses their perceptions of the patient's behavior when sober and when drinking. They describe the effect the person's drinking has on their life. They express their concern for the patient and why they want that person to seek treatment. Finally, they state the consequences of continued drinking. These must be clear and definite, not vague threats. For example, a wife must be certain of her choice if her husband continues drinking—separate bedrooms, separation or divorce; likewise the employer—probation, demotion, termination and so forth. All consequences must be tied to drinking behavior, not the emotions or judgments of the persons. All persons present must insist the problem drinker enter treatment immediately.

Evaluation of this technique must consider several factors. First, several studies have shown that any process that gets a person with alcoholism into treatment, such as voluntary admission, court-ordered commitments and the like, results in similar rates of abstinence. So if the intervention process gets people there before they might have otherwise, the benefit is in the decreased morbidity that might have occurred with any further delay. Second, no complications have been reported that would not have been expected in the natural history of the disease. Third, even if a patient does not seek treatment immediately after the meeting, the planned consequences provide continued, structured pressure on the patient and support for the family. Given those considerations, published and unpublished reports claim that about 70% of interventions will result in the alcohol abuser entering a treatment program. Overall, 55% to 60% of those patients will remain abstinent at least two years, with the abstinence rate rising to 80% if treatment was initiated while job and familial relationships were still viable.

Because a family physician often has a preexisting nonjudgmental rapport with the patient, he or she can play a valuable role in this process. The physician can diagnose the alcohol abuse, identify the family members affected by it and often will be aware of other key persons in the patient's life. If individual office counseling is ineffective, the physician can inform the significant others of this technique and coordinate planning with a local alcohol treatment facility. Finally, by attending the intervention meeting, the physician can dramatically underscore the gravity of the physical effects of continued drinking and demonstrate the depth of the physician's concern for the patient. With more professional attention and systematic problem-solving of the personal, familial and social factors contributing to alcoholism, approaches like this can help reduce the widespread tragedy of this preventable health problem.

David M. Baughan, M.D.
San Diego

REFERENCES

Anderson DJ: Perspectives on Treatment: Minnesota Experience. Center City, Minn, Hazelden Foundation, 1981.

Atkinson RM: Persuading alcoholic patients to seek treatment. Compr Ther Nov 1985, 11:16-24.

Barefoot SW, Smith VW: Intervention and alcoholism. South Med J Nov 1985, 78:1333-1334.

Johnson VE: I'll Quit Tomorrow. San Francisco, Harper & Row, 1980.

Twerski AJ: Early intervention in alcoholism: Confrontational techniques. Hosp Community Psychiatry Nov 1983, 34:1027-1030.

Panic Disorder

Panic disorder, commonly known as panic "attacks," is listed in *The Diagnostic and Statistical Manual of Men-*

tal Disorders, third edition (DSM III), under " anxiety disorders." This disorder was described by Freud as early as 1895, and recent studies have provided new information. Panic disorder occurs in 4 to 12 people per 1,000 of the general population and occurs in women three times as often as in men. It usually begins in late adolescence or early adulthood, but may also begin in mid-adult life. It can be limited to several episodes or become a chronic condition.

Many patients with panic disorder, not attributing their symptoms to anxiety, present to their primary care physicians for evaluation. They describe sudden and unpredictable feelings of fear or terror accompanied by autonomic symptoms. Thoughts of dying or going crazy are often reported. Albeit infrequently, panic attacks can be triggered by certain stimuli. They usually resolve spontaneously within minutes, but have been known to last for hours. To meet DSM III criteria, there must be three panic attacks within a three-week period, not during extreme physical exertion or a life-threatening situation. Physical symptoms commonly reported during an attack include shortness of breath, chest pain, palpitations, tingling in the extremities, dizziness or faintness, sweating, hot or cold flushes and trembling.

Recent studies of patients with panic disorder have led to interesting insights into its pathophysiology, and there are some data that suggest a genetic transmission of this condition. Positron emission tomography has shown decreases in left to right parahippocampal blood flow and oxygen metabolic rates, indicating the possible role of nonadrenergic or serotonergic central mediation. No demonstrable increase in the blood levels of β-endorphin, cortisol or luteinizing hormone provides evidence against the theory that panic attacks are controlled by a pituitary-adrenal activation mechanism. Studies have shown that a variety of substances infused peripherally can precipitate a panic attack in patients who already have the condition, but not in normal controls. Imipramine hydrochloride, monoamine oxidase-inhibitors and alprazolam block these induced attacks.

The differential diagnosis should include medical and psychiatric disorders. Cardiovascular symptoms are reported most frequently. Although a causal association has not been proved, it was recently reported that 34% of patients with panic attacks also have a mitral valve prolapse. The possibility of alcohol or sedative withdrawal and caffeine or amphetamine intoxication should be investigated. In the differential diagnosis of other psychiatric conditions, major depression and agoraphobia should be considered.

Pharmacologic intervention has been proved effective when adequate dosages are given for sufficient lengths of time. Imipramine hydrochloride in dosages of 75 mg to 150 mg a day is generally the drug of choice, and other tricyclic antidepressants may also be effective. Alprazolam in divided dosages of 3 mg to 6 mg a day can be used, but one should begin with a lower dose and titrate it to a level that relieves the panic attacks. This is a new medication and may be associated with physical and psychological dependence. Phenelzine sulfate is not a first-line drug of choice and should be reserved for those instances wherein patients have failed to respond to the other medications. It can be used in dosages of 60 mg to 90 mg, but there are strict food and drug restrictions associated with its use. Once a medication has been successful in treating panic disorder, its use should be continued for about six months, then the dose slowly tapered, watching for recurrence of panic attacks.

Jane-Ellen Health, M.D.
Robert L. Rhyne, M.D.
Albuquerque

REFERENCES

Curtis GC, Thyer BA, Rainey JM (Eds): Anxiety disorders. Psychiatr Clin North Am Mar 1985, (entire issue) 8:3-175.

Shear MK: Pathophysiology of panic: A review of pharmacologic provocative tests and naturalistic monitoring data. J Clin Psychiatry 1986, 47(suppl):18-25.

Weissman MM, Merikangas KR: The epidemiology of anxiety and panic disorders: An update. J Clin Psychiatry Jun 1986, 47(suppl):11-17.

Estrogen-Progesterone Replacement at Menopause

Wide acceptance now exists for prescribing short-acting oral estrogens in the lower effective dose for cyclic replacement in women entering menopause naturally or surgically. Indications are for maintaining bone mass and preventing osteoporosis, which accelerates at the climacteric without intervention. Estrogen replacement only (dependent on dosage) increases the risk of endometrial cancer fivefold. A dosage-response hepatitis rarely develops with the administration of estrogen. Yet, 1.2 million bone fractures a year happen to women older than 60 years who are not taking estrogen. The risk of death from hip fracture rises rapidly after the age of 60 from 20% to as high as 50% at age 80. Each year more women die of preventable hip fractures than of all ovarian-endometrial cancers combined.

To avoid the endometrial hyperplasia for women with their uteruses intact and yet protect against the multiorgan symptoms of estrogen deficiency, the use of estrogen is now recommended to be combined with 10 to 13 days of progestin use in a cyclic manner similar to the physiologic pattern of a premenopausal woman. A typical protocol is 25 days per month of 0.625 mg conjugated estrogen paired with 10 mg progesterone the last 10 to 13 days of the 25-day cycle. Some women will resume menses with this and will need endometrial sampling to assure there is no adenomatous hyperplasia. Progestin administration is probably indicated in women after a hysterectomy to protect the breast from unopposed estrogen for what will be the rest of a woman's life. The use of progesterone apparently increases the risk of cardiovascular disease, including hypertension, angina and coronary artery disease. The pattern of women at risk is poorly defined at this time but appears to be the same as for birth control pills—that is, smokers and a family history.

The hepatic effect of oral estrogen use includes hypertension, cholelithiasis and intravascular clotting, which are lessened with low-dose cyclic usage and future newer estrogen analogs that are being researched. Women completing treatment for breast and other malignant lesions may still be candidates for estrogen replacement; an oncology consultation is recommended.

All women need dietary education to include calcium (1.0 grams per day to age 60, 1.5 grams thereafter), vitamin D (with sunshine during exercise), fluoride (1.0 ppm in water or 1.0 mg tablet per day) and exercise in their daily routine to minimize osteoporosis. It is also well established now that in postmenopausal women, low-dose, cyclically given estrogen added to this regimen will further minimize osteoporosis and in most instances is probably indicated. The more complex pharmacologic issues to be resolved are what type and how much estrogen and progesterone are best for overall health.

Mary Elizabeth Roth, M.D.
Irvine, California

REFERENCES

Chetkowski RJ, Meldrum DR, Steingold KA, et al: Biologic effects of transdermal estradiol. N Engl J Med Jun 26, 1986, 314:1615-1620.

Estrogens for Osteoporosis. FDA Drug Bulletin Jun 1986, 16:5-6.

Riggs BL, Melton LJ III: Involutional osteoporosis. N Engl J Med Jun 26, 1986, 314:1676-1684.

Riggs BL, Seeman E, Hodgson SF, et al: Effect of the fluoride/calcium regimen on vertebral fracture occurrence in postmenopausal osteoporosis —Comparison with conventional therapy. N Engl J Med 1982, 306:446-450.

ADVISORY PANEL TO THE SECTION ON GENERAL AND FAMILY PRACTICE

Kenneth W. Patric, M.D.
Advisory Panel Chair
Section Editor
CMA Scientific Board Representative
Davis

William MacMillan Rodney, M.D.
CMA Section Chair
San Bernardino

Howard D. Groveman, M.D.
CMA Section Secretary
San Diego

John M. Higgins, M.D.
CMA Section Assistant Secretary
Chico

William Putnam, M.D.
Loma Linda University

William Fowkes, M.D.
Stanford University

Joseph E. Scherger, M.D.
University of California, Davis

Mary Elizabeth Roth, M.D.
University of California, Irvine

James C. Puffer, M.D.
University of California, Los Angeles

Theodore G. Ganiats, M.D.
University of California, San Diego

H. John Blossom, M.D.
University of California, San Francisco

Peter V. Lee, M.D.
University of Southern California

Sam W. Smith, M.D.
La Mesa

Richard E. Katz, M.D.
Garden Grove

Richard C. Barnett, M.D.
Sebastopol

High Expectations Versus Limited Resources

C. THOMAS SMITH

Commentators who seek to assess blame for the health care cost spiral often overlook the most important contributor—public values or expectations. Stated simply, our country embraces certain health care values which result in resource consumption patterns which have become problematic. Paul Starr described it this way in *The Social Transformation of American Medicine:* "Patients want the best medical services available. Providers know that the more services they give and the more complex the services are, the more they earn and the more they are likely to please their clients. Besides, physicians are trained to practice medicine at the highest level of technical quality without regard to cost. Hospitals want to retain their patients, physicians, and community support by offering the maximum range of services and the most modern technology, often regardless of whether they are duplicating services offered by other institutions nearby."[1]

Since health care practices are infringing upon other expenditure opportunities which we also value, major purchasers are now seeking the best buy in both cost and quality. While usage patterns are changing, the payoff from these changes may be short-lived unless the values or expectations which drive our behavior are addressed. For too long, health providers have behaved as if there are no limits on the resources available to meet society's health needs. Now that providers have incentives to limit resource consumption, public policy debate should seek an acceptable balance between collective expectations and available resources.

A broad-based dialogue involving all affected parties is required to achieve understanding of the consequences of alternative solutions to the dilemma. Since there is no locus for discussion of these matters, one must be created. Conceivably, those national organizations which represent providers (American Hospital Association, American Medical Association, Association of American Medical Colleges, and so forth) could convene a forum for consideration of long-range health care financing and delivery strategies. To avoid any potential provider bias, however, such a forum should be independent of either providers or buyers of care. One option is a Commission on National Health Strategy appointed by the President or, alternatively, assembled and financed by The Institute of Medicine. A report with public policy proposals will alter the system by stimulating actions to change behaviors. Media exposure to deliberations will provide needed visibility and attract the attention of key constituencies as well as educate the public to problems for which the commission's report is the intended solution.

The current health services system is the culmination of actions taken over time by each health system component: buyers, consumers, and providers. Before we inappropriately dismantle existing arrangements, we should understand the major influences which shaped them and preserve those components which are consistent with our social values.

The major buyers of care include businesses, on behalf of their employees, and governments, on behalf of public constituents such as the aged and the poor. In addition to shielding employees from major expense, employer policies also shielded those covered from more routine costs, with major medical policies which covered up to 80-90 percent of medical expenses. Governments, both local and national, attempted to provide mainstream medical care to their beneficiaries by providing institutional and medical benefits via Medicare and Medicaid. As a result, businesses and governments put themselves into the position of financing the major portion of health care services in this country. Changed circumstances require evaluation of whether or not business and government can afford to be the principal financiers of health services and, if not, what burden that would place on consumers.

Consumers of care, who have been somewhat insulated from concern about health service costs as a result of insurance and government program coverage, have responded rationally. Covered services were used in favor of uncovered services. In addition, the pronouncement that "health care is a right" generates certain expectations of the system. It is generally assumed that all needs will be met and that necessary resources will be available. Rare-

---

C. THOMAS SMITH, President of Yale-New Haven Hospital and Chairman of the Council on Teaching Hospitals of the Association of American Medical Colleges.

Reprinted from the Fall 1986 issue of *Health Affairs*, Project HOPE, Millwood, VA.

ly is consideration given to how much health care is a right, nor whose responsibility it is to deliver on that right.

Providers of care also have responded to system incentives in a rational manner. When funds were made available through the National Institutes of Health to explore human biology and the causes of disease, enormous creativity was unleashed which has made possible a myriad of new services. Indeed, the federal government once had a program (the Regional Medical Program) whose purpose was to disseminate new developments throughout the nation so that all citizens could have access to the latest technology. Additional federal programs provided seed money that ensured sufficient resources to make services available to everyone. The Hill-Burton Program expanded facilities and the Health Manpower Program enlarged the system's manpower resources to staff the expanded system.

Hospitals have been characterized as obese, inefficient, and poorly managed, labels which assist in garnering support for punitive actions but do nothing to increase understanding or change underlying values. While it would be untrue to assert that all hospitals are paragons of efficiency, it is equally unfair to categorically assert inept performance. Modern management practices are now commonplace in hospitals, as most have attempted to respond to calls for efficient operation. However, the most difficult area to control is the style of medical practice. A hospital may be efficient in delivering services ordered by its medical staff, but the more profound question is whether all of the medical staff's orders are appropriate and necessary.[2] If major savings are to be found in hospitals, they will come from changed medical practice, not from fewer support personnel or less expensive supplies and equipment. To focus on effectiveness, rather than efficiency issues, requires confronting values which are embedded in medical practice, in patient expectations, and in our judicial system.

Concomitant with the notion that health care is a right is the view of physicians that their moral commitment and legal obligation is to provide whatever service the patient needs, irrespective of costs. To do less than the maximum is to challenge one's professional oath and to incur potential lawsuits. Technological developments now make it possible to intervene with seriously ill patients who previously would not have been considered candidates for any therapeutic measures, for example, high-risk maternity patients, potential liver transplants, and certain cancer patients. Whether it is worth $20,000 per year to keep kidneys functioning (and the patient alive) via dialysis, or $50,000 to $100,000 to transplant a liver, plus $5,000 per year for life to buy drugs to prevent tissue rejection, or $70,000 to bring a two-pound neonate to a viable condition depends upon your vantage point. Generally, when these conditions affect us personally, they are crucial. If not, we can deal with them abstractly and "rationally."

While in some clinical circumstances survival rates are low, hope abounds that each patient will be a success. No one wants to deny patients access to potentially helpful medical procedures, nor to tell a patient that he is not worth the expense. Lasting change will occur, however, only when the medical profession embraces new values and expectations which are both ethically sound and legally sanctioned. Changed values will result in the establishment of new community standards of practice which are sustainable in the doctor-patient relationship. Such change will develop only by challenges within the medical community regarding cost-effectiveness, associated with significant public education efforts. Doing everthing requires little judgment; doing only that which is appropriate and efficacious requires the best professionalism.

The current focus on cost-effective insurance coverage needs to reach all of the covered population. Incentives to utilize the most appropriate services can have a profound effect on utilization patterns. Experimentation with deductible and copayment features may shed light on the most effective threshold to avoid unnecessary usage while encouraging early intervention. Once efficacious deductible and copay levels are determined, tax incentives could be devised to encourage cost-effective coverage by business. Special attention is required for the poor and aged, with careful monitoring needed to assure that unreasonable barriers to service do not prevent necessary care.

Other important issues which must be resolved include the responsibility for financing care of the poor and for training health manpower. Individual institutions have shouldered these responsibilities as part of their mission, but the burden is not evenly distributed. There is no competition for the patient with no resources and those with resources can often receive care at less cost than in hospitals with large charity loads. For example, Yale-New Haven Hospital in New Haven, Connecticut, charges paying customers an extra $10 million a year to pay for those patients with insufficient means. Price competition and the average cost model of Medicare's prospective payment system make no allowance to sustain hospital support of nonpaying patients. Such programs cannot be terminated, but neither can they be financed by historic institutional cost shifting. Broad-based public support is necessary to finance these essential community services.

These issues comprise a health care agenda for our nation. There is a compelling need to address them to avoid long-term disasters due to expedient short-term solutions. The proposed Commission on National Health Strategy should include providers, major buyers, and consumers and should initially delineate expectations of each. The give and take of the process would generate principles of cost-effective services by institutional and professional providers, for cost-effective financing arrangements by buyers and insurers, and for cost-effective utilization patterns by consumers. Each component would advocate these principles to their constituencies, with active public education support from the media. Having developed mutually supportable expectations of each component, resources can be allocated to cost-effective programs, with incentives to achieve system goals.

The integration of public and private, taxable and tax-exempt efforts to forge a health system has created an intricate web of relationships and responsibilities. While most of our health service needs are met most of the time, the price of doing so is becoming a burden. Merely focusing on costs, without consideration of what services are supported, will produce frustration, but not fundamental reform. Careless tampering with system components, without an overall plan based upon acceptable values, will merely substitute one set of problems for others. Effective change requires informed judgments about options and consequences by people who understand the intricate interrelationships in the system, and the values which sustain it. A National Commission on Health Strategy could be an integrating force for current disjointed efforts.

Some proposals for change imply that all values can be preserved if only providers will change their behavior. While the simplicity of this approach is appealing, it is incomplete. Effective reform can occur only when all elements of the system share the burden of change. The job is not easy, but its importance demands our best efforts.

REFERENCES

1. Paul Starr, The Social Transformation of American Medicine. New York: Basic Books 1982, 386-7.
2. John E. Wennberg, "Variations in Medical Practice and Hospital Costs," Connecticut Medicine July 1985.

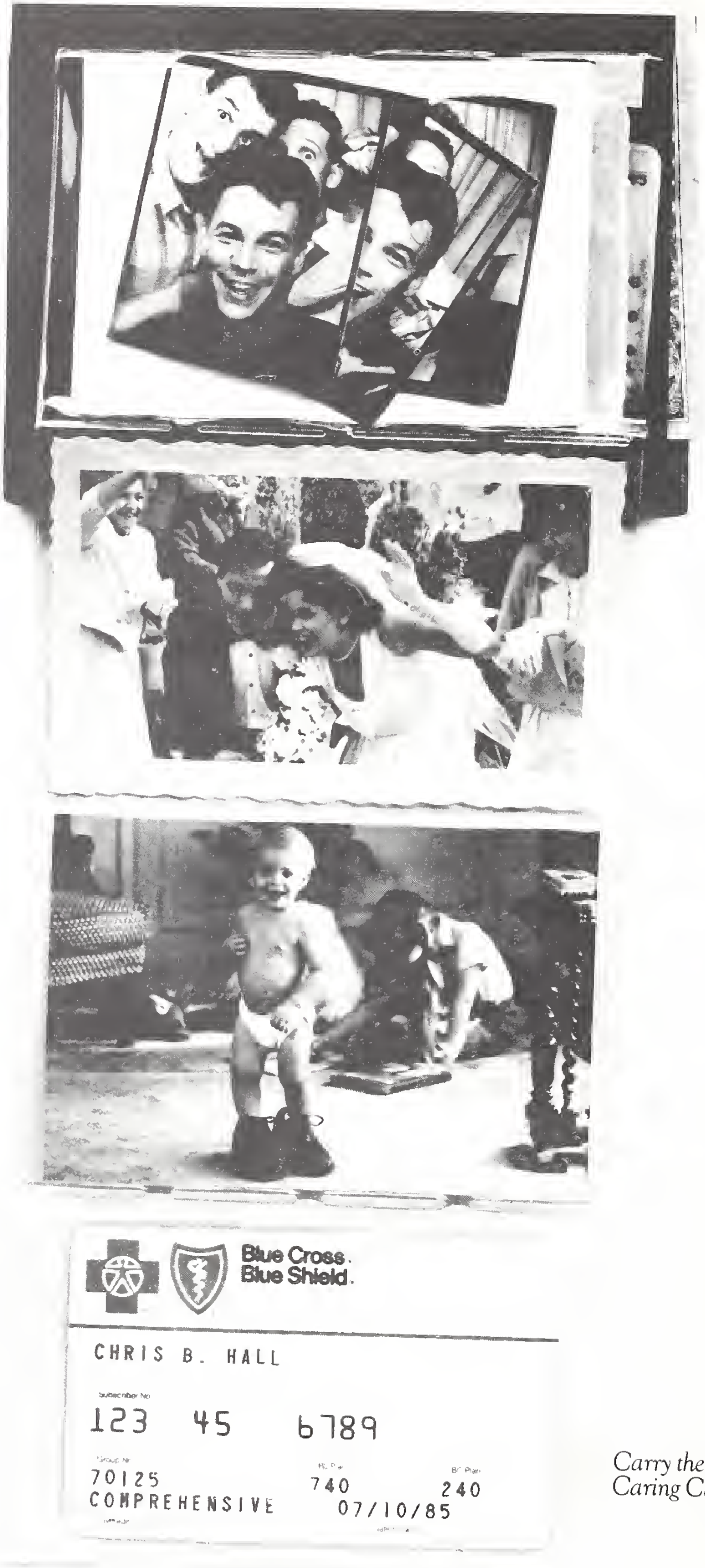
Opinions on Medicine

Over the last 10 years, the American Medical Association has conducted a series of nationwide surveys of physician and public opinion on health care issues. These reports summarize results of the 1986 surveys and, where possible, compare them with findings from earlier years.

The sample for the survey of 1,000 physicians was selected randomly from the AMA Masterfile to represent all active physicians in the United States. Telephone interviews were done by Tarrance, Hill, Newport & Ryan, a research firm based in Houston. The public survey was conducted with 1,510 adults, using a random sample of all residential telephones in the nation. Kane, Parsons & Associates, a research organization headquartered in New York, conducted those interviews. Data collection for both studies was accomplished during May and June, 1986.

Results of the two surveys have been reported separately and are organized topically; the major findings are as follows:

- Physicians for the first time see professional liability as the main problem facing medicine. The public's continuing primary concern, cost, has fallen to second place among physicians.
- The public is increasingly cognizant of a general liability insurance crisis, and substantial majorities are now sympathetic with physicians on a number of specific issues related to malpractice insurance and suits.
- More American adults perceive a physician surplus than in years past, but they are still more likely to report a shortage. Physicians indicate growing concern on several items related to physician supply and competition.
- Most physicians feel a continuing loss of control over patient treatment decisions and are very sensitive to that issue, reacting strongly against insurance plan provisions that require their decisions to be reviewed by persons other than practicing physicians.
- Physicians generally see patients as more knowledgeable, more cost-conscious and more demanding than they used to be, but there is less certainty about patients' willingness to follow prescriptions and their satisfaction with the treatment process. Still, most physicians believe their patients feel generally positive about their visits.
- There is considerable negative sentiment among the public toward doctors in general, but the image is not getting worse, as had been the case several years ago. Overall, public attitudes toward physicians are fairly stable.
- There is not a high level of awareness, especially among the public, of AMA policy initiatives, but there is widespread support among both physicians and the general public for a number of positions the Association has taken. Physicians overwhelmingly believe the AMA should continue to take strong positions on public health policies.
- A majority of American adults believe Medicare payments should be based on patient income and would be willing to pay additional taxes to ensure the program's continuation. Even larger numbers would contribute to a "Health IRA."



Nearly
80 million people
couldn't picture
their lives
without it.

*Carry the
Caring Card.®*

Medical Practice Variations Revisited

HELEN L. SMITS, M.D.

The risk that an individual living in the United States will undergo a given surgical procedure or be hospitalized for a given medical condition is heavily influenced by where that individual lives. John Wennberg has conclusively demonstrated this fact in his studies of small area variations in the rates of both specific surgical procedures and specific episodes of medical care.[1] Studies conducted in Canada show similar variations, not all of which can be explained by economic incentives inherent in the payment system or the numbers of available physicians and surgeons.[2]

Variations in the rates of use of medical services by different population subgroups are an attractive new target for those committed to cost containment in health care. If population A has a surgical rate for a given procedure that is four times the rate in population B then, so the argument goes, everyone would benefit and money would be saved if only A's rate could be reduced to equal B's. This logic can lead to requests, such as Wennberg's own, that physicians receive better information on their local rates in the hopes that such information can be used to shame those with high rates into reducing them. Carried to its logical extreme, the same reasoning dictates some form of enforcement of low rates either through rewards, punishments, or direct control.

The idea of using population-based data to support utilization review activities is not new. Michael Goran, the director of the Professional Standards Review Organization (PSRO) Program, suggested using Wennberg's work for review purposes in the mid-1970s. Potential reductions in high rates of use have become particularly popular recently, perhaps because the perverse incentive inherent in the system of prospective payment to hospitals is so clearly to increase rates of use in the local population, perhaps because the kinds of data bases needed to reproduce Wennberg's studies are only now becoming generally available.

Glorification of the golden mean (or, more accurately, of the low end of the normal curve) has become so popular that a commentator attempting to raise caveats is likely to be dismissed as an eccentric grouch. When the president of the American Medical Association, the policy representatives of a notably conservative administration, a foundation representative speaking for consumers, and a variety of researches of varied political stripes all concur in a single issue of *Health Affairs* that "regional variations in utilization patterns constitute a challenge that will have to be met aggressively in the coming decade," there seems little left to add.[3]

In fact, however, a primarily regulatory response to Wennberg's elegant work is dangerous and irresponsible. Rate variation can clearly be attributed to wasteful variations in practice patterns in some settings and at some points in time. Rate variation is also the hallmark of improvements in the science of medical care and the direct effect of the enormous variations in the health of the underlying population.

When Variations Are Acceptable

There are three settings in which variations in the use of medical services are either acceptable or highly desirable. These are: (1) when uncertainties in the science of medicine lead to acceptable alternate practice patterns; (2) when an innovation in diagnostic or treatment modality is in a phase of active dissemination; and (3) where the variation reflects underlying differences in the population's health status.

Uncertainty. The role of uncertainty in medical practice has been well described by David Eddy and will not be reviewed in detail here.[4] When approaching rate variations, the real issue posed by uncertainty is: When are two treatments for the same condition of equal merit? The most simplistic and common assumption is that a surgical approach should always be avoided if a medical substitute is available. While this logic has an innate appeal to anyone trained in internal medicine, it does not stand up to critical examination in all cases. Medical treatments may be more expensive, less acceptable to the patient, even more dangerous in the long run than surgery. What is needed is a far more sophisticated ability to balance all aspects of the choice of treatments, including

---

HELEN L. SMITS, M.D., assistant vice-president for health affairs, University of Connecticut Health Center. Prior to this, she was associate professor and director of medical studies in the department of epidemiology and public health at Yale University. In the late 1970s, Smits served as director of the Health Standards and Quality Bureau of the Health Care Financing Administration.

Reprinted from the Fall 1986 issue of *Health Affairs*, Project HOPE, Millwood, VA.

the patient's preference and the long-term risks, costs, and benefits of each alternative.

Dissemination of innovations. New treatments and approaches to diagnosis are not adopted uniformly by all hospitals and all physicians at the same time. When a new procedure has been developed, tested, and reported, it typically goes through a period of dissemination. Teaching centers are apt to adopt new procedures more quickly than community hospitals; young physicians entering practice will adopt technologies learning during training more quickly than will their established colleagues. Payment methods, the availability of capital, and a variety of other influences including how great a margin of improvement the new technology appears to offer will also affect the rate at which technology is disseminated.[5]

As a result there is always a period for any technology when the rate at which it is used is far higher in some areas than others. Any effort to enforce average rates or to drive all areas towards low rates will work against the dissemination of all new technologies no matter how beneficial or effective these technologies may be.

Although the literature on small area variation is astonishingly silent on the subject of innovation, a close reading of the available data tends to confirm the existence of the dissemination effect. For example, in their study of surgical rate variations among the elderly in Canada, Noralou and Leslie Roos examined three types of procedures: elective surgery, complex surgery, and cataract surgery. Population-based rates were developed for each type of surgery for fifty-six small service areas. For elective surgery, the ratio of the lowest, median, and highest rate was 1 to 1.8 and 3.1; for complex surgery it was 1 to 2.2 to 3.7; and for cataract surgery it was 1 to 2.3 or 4.2. Rates of complex surgery, in other words, showed higher variation than the group of elective procedures; cataracts when studied alone showed the highest variation of all.

The study, which used data from the early 1970s, defined elective surgery to include seven procedures most commonly referred to as discretionary or elective.[6] Complex surgery included all procedures having a hernia equivalent of 2.0 or greater; the authors cite four examples of complex procedures.

One possible interpretation of these data is that the high rate variations observed in the complex grou ewere, at least in part, dissemination effects. In complex surgery, two typical procedures included in the study above are in no sense elective: bilateral nephrectomy is done only in anticipation of kidney dialysis or transplantation; bilateral orchiopexy only in the aggressive treatment of certain cancers. Neither procedure has much likelihood of being performed unnecessarily. There are two plausible explanations for differential rates in procedures such as these: one is a differential rate of availability to Canadians in 1971 of lifesaving treatments for renal failure on the one hand and of effective treatment of prostate cancer on the other; the other a differential rate in the underlying population of renal failure and prostate cancer.

Cataract surgery presents a more complex picture. The procedure has improved markedly in ease, safety, and outcome in the last twenty years. As a result, the criteria for surgery have steadily changed as well. The old common wisdom that cataracts should "ripen" until the patient is near blind no longer holds. Unfortunately, no studies documenting outcome and identifying appropriate criteria for surgery have been conducted so that no clear-cut identification of an "acceptable" rate can be made. While high rates cannot be uncritically accepted as suitable, the assumption that the lowest rates are ideal is difficult to support. In fact, rates of cataract surgery in the United States have continued to increase steadily since the 1970s, a fact which suggests that the large differential rates observed by the Roos may well have represented a pattern of change overtime.

Data such as these are only a tantalizing hint. There is, however, a substantial literature on the dissemination of new technologies in medicine which deserves careful linkage to studies of rate variation. Such a linkage requires a critical look at the outcomes of care; new technology cannot be uncritically accepted as good. At the same time it should certainly not be uncritically rejected as bad. Enforcement of low rates of procedures essentially implies the latter point of view.

Population differences. How much health care does a population need? The question is a thorny one that has occupied — and supported — several generations of scholars. Multiple factors affect use: age, sex, socioeconomic status, out-of-pocket costs, and the numbers of available doctors have all been shown to be influential. These factors interact in unpredictable ways; one of the interesting and less-discussed findings in the Rand study of national health insurance is that families with high out-of-pocket costs for care will reduce the use of services by adults far more than they reduce use by children.[7] This suggests that some episodes of care are viewed as necessary across a wide range of costs while others are not. A careful look behind the aggregate data would probably reveal that, even for adults, different types of care show different levels of price sensitivity.

Even though a simple needs model cannot explain all use of services, need as determined by underlying health status must be considered a major factor in the equation. This influence is hard to describe and characterize; it is best seen in the simple fact that one of the best predictors of an individual's use of services in any given year is the same individual's use in the previous year. A more sophisticated description of this phenomenon would require the ability to synthesize the epidemiology of a myriad of diseases, each of which shows up in relatively low numbers in any population studied.

Such a synthesis is by no means impossible. One problem to date is that major studies of health services, such as the Rand experiment, have tended to focus on the "normal" population: the able-bodied and employed. The effects of health status would be more easily observed and might well be better understood if more effort were made to study in detail the high users such as the disabled or the victims of specific diseases.

Epidemiologists have known for a long time that illness is not evenly distributed among the population. Some of the maldistribution can be attributed to life-style and behavior—hence the old saw about the differential life expectancy in the neighboring states of Utah and Nevada. Others, such as chronic obstructive pulmonary disease and lung cancer among miners are heavily influenced by known environmental causes. Still others remain mysteries: multiple sclerosis, for example, is not only more prevalent among whites than blacks and among women than men, it is also almost twice as common in individuals living above the 37th parallel than in those living below.[8]

These examples are presented not as a series of interesting anecdotes, but as evidence for our need to integrate epidemiology into health services research. Chronic obstructive pulmonary disease and multiple sclerosis are severely disabling diseases; their victims have a long life expectancy after the onset of illness and a high need for costly services. Maldistribution of these two conditions within the general population is unlikely, in and of itself, to explain large variations in cost and use, but it does explain some. Careful analysis of the distribution of a wide range of similar diseases among the population will explain still more. Only by integrating sophisticated epidemiology into the examination of use patterns can we accurately determine the influence which need exerts on use.

Conclusions

Studies of small area variations in medical practice have made a major contribution to our understanding of the use of health services. The accumulated data clearly show that certain specific procedures and treatments are used more frequently in some areas than others. The power of this finding is enhanced by the fact that to date the work has been done on relatively homogeneous, usually rural, populations in which little variation in health status has been reported.

The available information on rate variations can be used to focus utilization review efforts towards specific procedures or to guide employers towards contracting with low-use and low-cost health centers. The information cannot, however, be extrapolated to mean that overall variations in the use and cost of services are attributable solely to practice variations or that overall reductions towards low existing rates are a desirable goal.

Future work in small area variations should not focus exclusively on practice patterns but should be expanded to explore the interactions between practice patterns and other factors. Integration of existing research on the dissemination of medical innovations and on the epidemiology of chronic disease is needed before we can say with real authority that the nationwide variations in use are in fact a challenge that requires aggressive correction.

REFERENCES

1. John E. Wennberg, "Dealing With Medical Practice Variations: A Proposal for Action," Health Affairs Summer 1984, 6-32; and John Wennberg and Alan Gittelsohn, "Small Area Variations in Health Care Delivery," Science 1973, 182:1102-1108.
2. Noralou P. Roos and Leslie L. Roos Jr, "Surgical Rate Variations: Do They Reflect the Health of Socioeconomics Characteristics of the Population," Medical Care 1982, 20 no.9:945-958.
3. The entire Summer 1984 issue of Health Affairs was devoted to the subject of small area variations. This quotation is taken from the article by James H. Sammons, representing the American Medical Association.
4. David M. Eddy, "Variations in Physician Practice: The Role of Uncertainty," Health Affairs Summer 1984, 74-89; and David M. Eddy, "Clinical Policies and the Quality of Clinical Practice," The New England and Journal of Medicine 1982, 307:343-347.
5. The vast literature on the diffusion of new technologies defies presentation here. An excellent recent review of the topic, with bibliography, can be found in Strategies for Medical Technology Assessment, Office of Technology Assessment. Washington D.C. September 1982. See especially Chapter 6, entitled "Factors Affecting the Development, Diffusion and Use of Medical Technologies."
6. Lens extractions, prostatectomy, hysterectomy, cholecystectomy, hemorrhoidectomy, varicose vein stripping, and inguinal hernia repair are included in the definition of elective surgery.
7. JP Newhouse et al, "Some Interim Results from a Controlled Trial of Cost Sharing in Health Insurance," The New England Journal of Medicine 1981, 305:1501-1507.
8. Herbert M. Baum and Beth Rothschild, "The Incidence and Prevalence of Multiple Sclerosis," Annals of Neurology 1981, 10:420-8.

102
103
The Western Journal of Medicine
S. BALESTRA

Be Sure To Get Your Own Copy.

Return This Coupon.

CT

Please mail this coupon with
enclosed payment to:

The Western Journal of Medicine

Circulation Department
P.O. Box 7602, San Francisco, CA 94120-7602

Subscriptions, 12 Issues Per Year
U.S. and Canada $20
All other countries $30

Enclosed is $__________ to cover __________ subscriptions.

Subscription renewal ☐ Regular subscription ☐ Foreign subscription ☐

TO: ______________________________

____
Street

____
City State Zip

____

Specialty ______________________________

Gift Card to read "From ______________________________"

Aging America

The Time Bomb Keeps Ticking

TIMOTHY B. NORBECK

When Mark Twain was asked what he thought of Richard Wagner's music, he said that "It's not as bad as it sounds." Close examination of the national debate on aging America which is about to intensify, would indicate that things are as bad as they sound. Up to now, we have heard smatterings of statistics cast about which lead us to the conclusion that we, as a nation, have not properly addressed the elderly's financial ability to meet their health care needs. The plain and simple truth is that we are facing a bona fide crisis in every sense of the word.

Around the time of the great depression in the early 1930s, America's population was considered young. In the past fifty years, however, we have shifted to the opposite end of that spectrum. We cannot deny this trend. Quite simply, no other nation has aged so rapidly in the history of the world. Also obvious is that the national debate on aging is, and will continue to be, one of the most important issues of our time. Unfortunately, we have not prepared ourselves for the aging phenomenon, and the debate lends itself to emotional outbursts and threatens to polarize our people.

Today there are 28 million Americans 65 years of age and older (more than the entire population of Canada), and that number will increase by 18 percent in the next decade. Between 1970 and 1984, the number of very old people—those 85 and over—rose by nearly 90 percent, from 1.4 million to 2.7 million people. The 85 and over group, a most significant part of our population in several respects, is the fastest growing segment of our population. This rapid growth is expected to continue through the end of this century when in a period of only 14 years, their numbers will have almost doubled. Today there are 35,000 Americans over 100 years of age and that number will triple by the year 2000.

All of us can and should rejoice at those numbers and projections, and American medicine can take particular pride in its contributions to this notable achievement. This aging phenomenon attests to medicine's accomplishments over the past 50 years along with its abilities to greatly enhance the quality of life for all citizens. But for all the joy that its success has wrought, there is a downside, too. Lost in the shuffle of statistics and demographics is the realization that our nation has not prepared itself for such an eventuality.

Although constituting slightly less than 12 percent of our population (11.9 percent nationally and 12.9 percent in Connecticut), the 65 and over group accounts for one-third of our health care costs. While this should be expected, there are some critics who claim that this is too disproportionate a figure. Pointing to the 10.6 percent of our Gross National Product spent on health care in the United States, they rail against any further increases. We should remember however, that the GNP is really nothing more than an indication of a nation's wealth. Is 10.6 percent too much for a people who clearly demand the best possible health care? Besides, as Disraeli once noted, if "The health of the people is really the foundation upon which all of their happiness and power as a state depend," how much is too much?

Still others express concern about the high cost of dying and cite the almost 30 percent of the Medicare budget which goes to pay for medical bills for those in their last six months of life. Many raise the question of life-prolonging machines which seem to have replaced God as the author of death, and suggest that we stop treating death like it's an option. There remain numerous legal and ethical obstacles before this question can be resolved.

Some critics claim that the elderly are well off and that government programs are already too heavily skewed toward our senior citizens. Members of the Americans for Generational Equity complain that the Social Security program is nothing more than a massive transfer of wealth from the young (many of them struggling) to the old (many of them living comfortably). Others cite figures indicating that the over 65 poverty rate of 12.4 percent and which becomes 2.6 percent after non-cash benefits are considered, is lower than any other age group. But this tells only part of the story.

While the elderly are slightly less likely than other groups to be poor, they are more likely to be near poor. For example and according to the U.S. Senate Committee on Aging, senior citizens are poorer than the younger population at 125 percent of the poverty level—23.7 per-

---

TIMOTHY B. NORBECK, Executive Director of the Connecticut State Medical Society.

This speech was presented by Mr. Norbeck to the New Haven Rotary Club, New Haven, CT, August 12, 1986.

cent for persons over 65 as compared to 19.8 percent for those under 65. It may be that Irish poet and playwright, William Butler Yeats' opinion that old age is nothing but "a tattered coat upon a stick" does not apply to the elderly as a group but the description is not so far off for increasing numbers of senior citizens.

At the same time that all statistics confirm a population boom among our elderly, programs such as Medicare are being cut. The Medicare program has undergone reductions of $40 billion over the past five years, reductions that amount to a full 12 percent of the total federal cuts to the budget even though Medicare accounts for only 7 percent of all total federal budget outlays. Additional slashes of equal magnitude are being considered and planned for the next five years. Compounding these difficulties is the rapidly escalating hospital deductible paid by Medicare patients. Senior citizens have experienced a 200 percent increase in that deductible since 1977 and a 23 percent rise in 1986 to $492. Projections indicate another increase of $80 to $572 effective in January, 1987.

Although the ranks of our 85 and over elderly are swelling faster than any other age group in America, the growth in the number of few nursing home beds available to care for them has lagged. Some forecasters estimate that we may have to double our current bed capacity by the year 2000 in order to accommodate that need. At this time, nursing home bed capacity is increasing at a little better than half the rate of growth of the groups most likely to need nursing home care—that is, those 85 and over. The odds are something like 1 in 100 that one aged 65-74 will have to enter a nursing home. Those odds become 7 in 100 for senior citizens between 74 and 85. At the 85 and over level, however, the odds change considerably. Some 23 in 100 in this latter group will find themselves candidates for nursing home care.

We as a people should also be concerned about an American Association of Retired Persons (AARP) poll which indicates that 79 percent of the elderly mistakenly believe that Medicare will cover long-term nursing home care when, in fact, the program only covers 100 days—and then, only in a low percentage of cases due to its many restrictions. To my knowledge, only 125,000 to 150,000 long term care policies have been marketed to a senior citizen population of 28 million plus countless millions more who will join the ranks of the elderly in the next few years.

Long term nursing home care has exacted a horrendous toll on senior citizens and their families alike. The average individual requiring long term nursing home care uses up his or her accumulated life savings within just one year. Then Medicaid takes over. A great majority of our elderly have been characterized over the years as taking pride in paying their own bills. Losing their life savings and their dignity in the same process as they are forced on the burgeoning rolls of the Medicaid program is a very bitter pill for them to swallow.

Another major concern related to long term care is that 50 percent of all those covered by Medicaid in nursing homes were not on that program upon entering that home. Officials talk of cutting back on Medicaid budgets, but how can that possibly be achieved when it represents the last hope for so many to receive help?

We should be concerned about the 63 percent of our elderly in Connecticut who are women, many of them living alone and in need of help—and whose problems are different and incomes less than those of men. Some 40 percent of all single women over 65 in the United States have incomes less than $5000 a year. Half of all elderly women in this nation live within $800 of the poverty line. Poverty remains at a crisis level for widows, minorities, and those who live into their 80s. It is clear that over 65 women are one of the most disadvantaged groups, and the fact that more than 71 percent of the elderly poor are women certainly attests to that!

Another major concern deals with the overall effects of these problems and other pressures on the mental health of our senior citizens. Do you realize that the suicide rate for those over 65, after dropping for years, has risen dramatically over the past few years to the extent that it is now 50 percent above that of the general population? Cutbacks in Medicare, Medicaid, food stamps and pension along with forced retirements have made poverty an increasingly common feature of old age for growing numbers of senior citizens.

But the problem doesn't even end there. The General Accounting Office and the Senate Special Committee on Aging suggest that under the DRG prospective payment system in hospitals, some senior citizens are being discharged too early from hospitals with nowhere else to go. As the senate committee chairman puts it, these elderly fall into a "no-care" zone where nursing homes reject them either because the homes are too full or the patients are too sick. Thousands of complaints have been directed from elderly patients to the U.S. Department of Health and Human Services.

Many should be eligible for home health care benefits under Medicare, but once again our senior citizens have drawn the short straw. Federal government policies restrain benefits by invoking vague, confusing and unpublished guidelines—thereby denying help to the very people who need it the most. It has become increasingly difficult for Medicare beneficiaries to appeal denials. These denials, not so incidentally, numbered almost 50,000 in the first quarter of 1986 alone. We are fortunate in Connecticut that the State Department on Aging and the Commission on Aging have recognized these federal deficiencies and taken steps to alleviate them by providing a grant program which will offer help to those who have been denied Medicare payments for home health services. Denials of essential home health services serve as another example to remind us that elderly health problems have far too low a priority with the federal government.

What can we do about this litany of problems directly afflicting our senior citizens and indirectly affecting the rest of us? Congress is wrestling with a catastrophic insurance plan, and others favor expanding the Medicare program to include such benefits. Obviously we must address the issue of long term care for the elderly. Perhaps you may remember Linus from the "Peanuts" comic strip saying to Charley Brown that "There's no problem too big that we can't run away from it." This is of such magnitude, however, that we cannot any longer run away or ignore it.

Even in its best light, long term care can only be viewed as the greatest threat to financial security to the aged. As the odds for living past age 85 increase, that threat only intensifies. If we do not resolve it, we may reach a sad point in our history where long term care will be available only to the wealthy who can afford it, or to the poor who will be covered by Medicaid.

The insurance industry, with all its power, influence and ingenuity, must develop benefit plans that can be expanded to the elderly. They must be affordable and must be marketed nationally. People must be educated so that they understand that Medicare is not their long term care salvation – in fact, that Medicare will only provide a very restrictive 100 days of coverage. All citizens, young and old alike, must plan for living longer lives. Medicare should be expanded to include catastrophic coverage for acute health care needs.

We must protect our senior citizens from further health cuts and urge the rapid development of a long term insurance program. Let us not, in the rush to cut costs and balance budgets, forget our elderly who helped build this state and nation and who spent a lifetime working and paying taxes. A certain poem comes to mind when pondering these problems and considering solutions. I liken these important efforts to the famous lines from Longfellow's "Ship of State."

"Sail on, O ship of State!
Sail on, O Union, strong and great!
Humanity with all its fears,
With all the hopes of future years,
Is hanging breathless on thy fate."

CSMS NEWSNOTE

New Elderly Home Care Benefit

As of January 1, 1987, every Medicare patient who also has Blue Cross 65 supplementary coverage will be entitled to have $500 worth of home health care services paid for under the BC 65 contract, according to State Representative Edith Prague of Columbia, Connecticut. For this benefit, there is no requirement for prior hospitalization, but the care must be medically necessary and ordered by a physician.

While you take care of patients, who takes care of you?

Connecticut physicians rely on us for comprehensive insurance and financial services.

- Professional liability coverage
- Business owners protection
- Personal life, auto, and homeowners insurance
- Financial planning
- Complete brokerage services

The Watson Group - professionals serving professionals.

the WATSON GROUP

Arthur A. Watson & Company, Inc.
Financial Action Plans, Inc.
Watson Financial Services Corporation
AAW Physician Plans, Inc.

225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

M.D. Health Plan Application for Licensure

Executive Summary

CSMS IPA-HMO STEERING COMMITTEE

Background—In December, 1985, the Connecticut State Medical Society (CSMS) leadership identified the increasing proliferation of alternative delivery and financing systems (HMOs) within the state health care marketplace. Of particular concern was the impending entry into the market of large out-of-state corporations seeking to profit from the fragmentation of the health care system at the expense of Connecticut providers (physicians and hospitals) and their patients.

The Council of the CSMS began discussions concerning the feasibility of establishing a single, statewide competitive vehicle (HMO) that would be sponsored by CSMS physician members.

In February 1986 the Garvey Group, an HMO consulting firm specializing in market and feasibility assessments, was retained to conduct a feasibility study to examine the viability of CSMS establishing a statewide IPA-HMO that would be capitalized, controlled, and directed by its member physicians.

In May 1986 the CSMS IPA-HMO Feasibility Study was presented to the CSMS House of Delegates. The study identified both the advantages and risks for CSMS in developing Connecticut's first statewide IPA-HMO. During the House of Delegates meeting, a three-hour discussion ensued on the study and concluded with a unanimous vote by the 240 physician delegates to proceed into development with the project.

In June 1986 CSMS contacted its member physicians, and within six weeks approximately 2,500 physicians individually signed a Letter of Intent to Contract and submitted $500 each to join the CSMS-IPA. At this point the Society had expended $140,000 on feasibility determination and IPA development.

On August 1 1986 after interviewing several HMO development companies, CSMS awarded the contract to LeBoeuf Consultants, Inc. (LCI) of Boston, Massachusetts, whose President, Barry S. Scheur, Esq., had served as legal counsel to CSMS during the recently completed feasibility study.

M.D. Health Plan Licensure Application

The licensure application encompasses thousands of hours of consultant, development team, and IPA-HMO physician board member energy, time, and expertise.

The M.D. Health Plan application examines six key IPA-HMO development and operational areas and clearly demonstrates the financial, marketing, legal, and health services delivery viability of the Plan.

1. General Information

This section briefly summarizes M.D. Health Plan's history, current status, key HMO development areas, development team credentials, and the Plan's statewide service area.

2. Organizational and Contractual

"CSMS-IPA" is incorporated as a non-stock corporation. M.D. Health Plan is incorporated as a for-profit corporation for the purpose of providing comprehensive prepaid health care services to enrollees throughout the state of Connecticut. Certificates of Incorporation for both the IPA and HMO are appended. Additionally, IPA and HMO by-laws are reviewed.

An HMO-IPA Organizational Chart and HMO Contractual Relationship Chart is included in order to provide a visual understanding of the organizational and contractual relationships of the Plan.

The M.D. Health Plan risk sharing arrangements have been designed to ensure maximum incentives to participating/investing physicians to provide high quality, cost-effective care. Two health care expense funds have been established: 1) IPA Fund, and 2) HMO Hospital Fund.

Reinsurance arrangements including basic stop loss, insolvency, out-of-area emergency, conversion coverage, and directors' and officers' coverage are discussed in detail, including specimen copies of the reinsurance agreements with State Mutual Life Assurance Company of America and Lincoln.

M.D. Health Plan Board of Directors Membership and Committees are reviewed. The composition of these boards conforms to Connecticut State regulatory requirements.

The Plan intends to contract with one outside entity (Quality Care Review, Inc. - QCR) for services including certain quality assurance, utilization review, and risk management components.

Submitted by the CSMS IPA-HMO Steering Committee to the State Insurance Department on November 18, 1986.

Provider contracts and agreements are reviewed and include copies of the IPA-HMO, IPA-Physician, and Hospital Services Agreements.

The Group Services Contract will be utilized as the membership/subscriber and non-group conversion contract, and is appended.

A specific member grievance procedure and format is provided, guaranteeing the expeditious adjudication of any M.D. Health Plan member concerns/issues.

3. Finance Section

The financial plan for M.D. Health Plan has been prepared by Health Economics, Inc. It was developed on the basis of experience of other HMOs, incorporating conservative margins.

Capitalization

The initial capitalization of M.D. Health Plan is projected to be at least $7,000,000, derived from the sale of stock to Connecticut physicians participating in the health plan.

The financial analysis indicates that M.D. Health Plan will start out with a strong financial base, and that any foreseeable contingencies will not threaten the base financial viability of the plan.

Compensation to Providers

M.D. Health Plan expects to enter into agreements with contracting hospitals, and to pay negotiated rates for hospital services and hospital based outpatient services.

Principles adopted for physician compensation are comprehensively discussed in the Organizational and Contractual, and Health Services Delivery sections. Basically, each participating physician will be asked to submit a schedule of charges in effect on October 1, 1986, which will be used as a basis of payment for the following two years (until September 30, 1988), and will be subject to substantiation. Such charges, unique to each physician and "frozen" for two years, will replace the usual fee schedule or RVS-based guidelines to determine maximum charges. In addition, the highest range of fees will be "capped" at an acceptable level.

A further provision is that payments will be equalized to some extent, returning more of the withhold amount to those with the lowest fee levels than to those at the top of the range.

It is recognized that the foregoing physician compensation methodology is innovative, and entails greater financial uncertainty than is involved in most IPA developments and a more complex administrative structure than usual. There is, therefore, provision for reversion to more traditional approaches if the foregoing is proven to be impractical (that is, inequitable, or not affordable, or leads to uncompetitive premiums).

Benefits

M.D. Health Plan will initially offer two benefit plans, "standard" and "basic". In addition, the plan will offer a series of benefit riders and a "Medicare" supplement or "wraparound" program to retirees.

Development of Community Rate

The M.D. Health Plan standard plan average capitation is $71.01 per member per month for 1987. The utilization rates assumed for services are based on the observed experience of other IPA-HMOs. The average capitation rate of $71.01 is centered at July 1, 1987 and is trended on a monthly basis. M.D. Health Plan's premium rates will be adjusted monthly and will be guaranteed for one-year contracts entered into at any time during the month.

Variation of Capitation Rates

M.D. Health Plan's capitation rates will be subject to three possible adjustments:

a) Regional cost adjustments

b) Group size and penetration adjustments

c) Age/sex adjustments

Development of Premiums

M.D. Health Plan premiums are intended to: a) conform to industry practice in charging rate by tier and, b) yield revenue equal to the required capitation. The premiums will vary from group to group to reflect each group's demographics and rate ratios charged by existing group insurance plans or other HMOs.

Projected Statements of Revenue and Expense

The pro-forma financial projections are based on a projected startup date of February 1, 1987. Based on the factors reviewed, M.D. Health Plan anticipates breakeven in month 18 (July 1988) at a membership of 43,616, generating an accumulated deficit of $3,939,500. At month 36, the cumulative surplus is projected to be $1,322,296, in addition to an accumulated contingency reserve fund of $3,759,847.

4. Health Services Delivery

M.D. Health Plan is an Individual Practice Association type HMO model. Physician services in M.D. Health Plan will be provided primarily by CSMS-IPA which is a medical society sponsored organization. The contracts between the IPA and its members and the IPA and HMO are exhibited.

Physicians participating with CSMS-IPA will be compensated based upon the methodology described in the Financial Section.

The overall goal of M.D. Health Plan's delivery system is to establish a statewide IPA-HMO that allows for the participation of all Connecticut physicians. This health care delivery system will offer high quality prepaid health services to virtually all residents residing within the state.

M.D. Health Plan anticipates contracting with all of the state's 36 acute care hospitals. Letters of intent from 32 of the Connecticut hospitals have already been received and are exhibited.*

---

*At press time, 33 Hospital Letters of Intent had been received.

Utilization Review

M.D. Health Plan believes that Utilization Review encompasses not only overutilization of services, but underutilization of services, the utilization of inappropriate services, and the utilization of services in the appropriate setting, and is therefore inseparable from issues of Quality Assurance. To the greatest extent possible, M.D. Health Plan proposes to use a common set of organizational structures, criteria, and corrective procedures for both utilization review and quality assurance.

Quality Assurance

M.D. Health Plan has adopted as a fundamental commitment the construction of a strong, viable, and effective quality assurance program dedicated to improved health care delivery. To implement this commitment, quality assurance review systems must address:

a. Physician/provider performance

b. Resource management (utilizations)

c. Risk management (avoidance of patient injury)

and must recommend change and corrective action, inducing provider sanctions, where appropriate. An important element of policy is that the approval of criteria standards, and the conduct of review, be done by practicing physician members of CSMS-IPA.

M.D. Health Plan retains responsibility for the quality of care delivered to members, and accountability for the structure developed to implement the quality assurance program is assigned to the M.D. Health Plan Board of Directors to implement the commitment to peer review and development of standards by practicing physicians. The HMO will contract for these services to be performed by the Quality Assurance, Utilization Review and Risk Management (QAURRM) Committee of CSMS-IPA, as earlier described under Utilization Review.

Open Access

Patients enrolled in M.D. Health Plan will have open access to CSMS-IPA physicians. The structure for patient care is developed to place on patients and physicians only those constraints which are deemed necessary either (a) to insure the financial integrity of M.D. Health Plan or (b) to insure that widely accepted standards for quality medical care are observed.

Patients will be educated and strongly urged to designate a physician who will be called their "primary physician" who will be responsible for coordinating all aspects of their care. They will however, not be required to obtain referral from their primary physician to see another in-plan physician should they so choose. Patients will be required to obtain a referral from an in-plan physician to obtain covered hospital and ancillary services, the services of non-physician professional and ancillary service providers, and out-of-plan physicians, except in the case of emergencies, as defined in their subscriber contract.

The services of participating physicians will be available during their routine hours. Hours vary from physician to physician, but generally M.D. Health Plan physician offices are open Monday through Friday from 8:30 a.m. to 5:00 p.m., and Saturday from 8:30 a.m. to noon. Physicians may be contacted during other hours through their respective answering services. Inpatient and emergency services are available at affiliated hospitals twenty-four hours a day, seven days a week.

Management Information Systems (MIS)

Profiling approaches depend on the existence and capabilities of a computerized management information system (MIS). M.D. Health Plan has identified a proven MIS system which has many of the following characteristics, and plans an aggressive development program to implement all of them in a timely manner.

- Ability to generate a routine series of profile reports by physician and patient.
- Ability to allow for online, interactive, *ad hoc* data analysis for intensive and more detailed review of potential problems identified from routine analysis of reports and from early review of problems identified during the concurrent review process.

This MIS capability will be applied to profile inpatient hospital and other institutional facility utilization as well as ambulatory care.

The MIS will be used to generate reports to allow for review of all aspects of utilization of services and quality of patient care. It will track the volume of services for purposes of providing cost-effective care, thereby assuring the fiscal integrity of the CSMS-IPA and M.D. Health Plan. In addition, it will profile the reasonableness and medical necessity of the services provided to assure that CSMS-IPA patients receive the type and volume of services that are medically necessary and appropriate to the management of their medical problems.

5. Management

All members of M.D. Health Plan's initial Board of Directors are physicians that have served since June 1986, and whose term of office will expire at the inauguration of the first elected Board. Under M.D. Health Plan Bylaws, eight of the 24 Board Members shall be HMO subscribers and one shall be a dentist.

LeBoeuf Consultants, Inc. (LCI) is in the process of interviewing and hiring senior management staff for M.D. Health Plan. Two senior level positions have already been recruited and hired: Vice-President, Professional Relations and Vice-President, Operations. LCI consultants will assume management responsibility until permanent M.D. Health Plan staff is recruited.

Management Information Systems

The M.D. Health Plan MIS has been designed to maintain financial control and conduct timely and effective utilization and quality assurance reviews.

Software

As a result of an extensive study of HMO software, M.D. Health Plan expects to contract with Gateway Systems of Denver, Colorado for installation and configuration of the "Comprecare" IPA-HMO software. This software package is well established and has achieved operational success in ten or more IPA-HMOs utilizing open access delivery systems.

Hardware

M.D. Health Plan instrumentation will be a mid-range minicomputer configured to support on-line data entry and database interrogation. The initial configuration will support membership up to 50,000, and is expandable to support membership in excess of 250,000.

The unique design of M.D. Health Plan requires substantial data management and analysis capability in the staff function which produces a flow of material for review by the CSMS-IPA QAURRM Committee. CSMS-IPA is presently instrumented with an extended-memory IBM PC AT which supports an extensive set of data management programs and peripheral equipment. Arrangements are planned to allow this machine, enhanced as necessary, to provide a rapid communication path and independent analytical capability for the management of UR and QA functions.

6. Marketing

M.D. Health Plan's marketing analysis indicated that the state can successfully support the development of a Connecticut State Medical Society sponsored statewide IPA-HMO program.

The market service area for M.D. Health Plan is the entire State of Connecticut, which consists of 169 towns within 4,870.4 square miles. The total population base according to 1985 statistics is 3,198,000 residents.

The low rate of population change for Connecticut (5.4%) in comparison to the U.S. average (16.5%) during the 1970-85 period is a measure of the relative stability of the Connecticut population base. Stable populations create environments in which physician-patient relationships can flourish, creating a natural IPA-HMO condition. The population change analysis indicates that a natural marketing opportunity exists for the development of M.D. Health Plan's statewide IPA model HMO.

Connecticut consistently shows one of the highest levels of household and per capita income earnings in the country. In 1984, Connecticut ranked second in the U.S. in per household effective buying income at $38,905, and second highest per capita personal income at $16,556.

The business environment within M.D. Health Plan's service area provides optimal conditions for HMO marketing activities. Connecticut's economy is considerably diversified, as evidenced by the state's reputation as a manufacturing center and exporter of high quality goods. A favorable financial regulatory environment has also made Connecticut a leader in the insurance, finance, and service industries. Overall, Connecticut enjoys a robust economy, favorable job mix, low unemployment, stable work force and an expanding job market.

The total resident labor force residing within the M.D. Health Plan service area as of 1985 was 1,732,195 people.

Competition

The M.D. Health Plan will be entering an extremely competitive environment in 1987. Seventy-two per cent of the state's population is covered by indemnity and service types of insurance. Twenty per cent are participants in plans that are self-insured, or subject to Administrative Services Only (ASO) contracts, or Minimum Premium Plans (MPP). Commercial carriers, of which Aetna, CIGNA and Prudential are the largest, make up approximately 19% of the insured marketplace. The most formidable health insurance competition is the state's largest insurer, Blue Cross-Blue Shield of Connecticut, which has captured approximately 51% of the marketplace.

Collectively HMOs in Connecticut have penetrated only a small fraction (8.8%) of Connecticut's overall population of 3,182,801 for a total enrollment of 280,226 members as of 1/1/86.

Projections indicate that by 1990, enrollment within the prepaid HMO programs will increase to 25% of the population or approximately 799,500 enrollees.

There is a strong physician support for the HMO concept in Connecticut. There are a number of reasons for this high level of support. Essentially, there is the "concern factor," i.e., physicians share the concerns of business, labor and consumers of health care services that the escalating costs for health care delivery must be controlled. Physicians believe that HMOs can provide the opportunity for conscientious maintenance of these costs in a manner which will not impact adversely on the high quality of the medical and health care delivery process.

Membership Forecast

The M.D. Health Plan's anticipated cumulative enrollment at the end of each year is:

Year 1 (1987) - 26,343
Year 2 (1988) - 70,327
Year 3 (1989) - 123,833

These figures were obtained by applying the M.D. Health Plan enrollment forecasting methodology and penetration assumptions to the various target employer groups selected for marketing.

Marketing Strategy

The overall objective of the M.D. Health Plan marketing strategy is two-fold: 1) to continually enroll sufficient membership to attain financial viability, and 2) to do so on a controlled growth basis so that the necessary health resources are available to provide high quality service. The interdependence between market growth and fiscal planning dictates that marketing strategists be constantly aware of maintaining a sound relationship between per capita premium revenue and per capita expense.

In other words, the overall objective involves steady and sustained growth. In order to accomplish this objective, M.D. Health Plan must develop a membership which is representative of all segments of the population. This process means enrolling groups of all sizes in the private and public sectors as well as Medicare eligibles and

Medicaid recipients. In this way, M.D. Health Plan's marketing success will not depend solely on any one segment of the marketplace. Therefore, an integral part of the marketing strategy will be solicitation of a variety of employer market segments in pursuing a breakeven enrollment.

Top Down - Bottom Up Strategy

In comparison to the existing HMO follow the leader approach, M.D. Health Plan will utilize a top down and bottom up strategy.

The M.D. Health Plan marketing strategy concentrates on two segments of the Connecticut marketplace (large statewide self-insured groups and small under 100 eligible employee groups) that should find M.D. Health Plan attractive if competitively priced.

The larger self-insured groups are concerned with bottom line cost savings which M.D. Health Plan, through efficiencies of scale with a statewide network, should provide effectively. The small group market has not been penetrated by existing HMOs because: 1) this segment has not been part of the HMO's marketing strategy and 2) broker arrangements have not been effectively developed, structured or established, and 3) the health care delivery system has not been in place to provide a comprehensive set of services to all of their employees.

M.D. Health Plan believes that the top down, bottom up market segmentation strategy will prove effective against existing HMOs in the marketplace, insurance company sponsored HMOs and the existing health insurance competitors.

Primary Target Market Analysis

The ultimate goal of M.D. Health Plan's market analysis is to produce a realistic three-year enrollment forecast based upon a very focused group of primary target employers.

One advantage of focus marketing through the "top down-bottom up" strategy is that, if successful, the approach demonstrates M.D. Health Plan's ability to penetrate a market previously untouched by other HMOs. The second advantage of the focused approach is that, due to the inherent danger of selective marketing, the organization is compelled to develop clear alternative strategies to offset enrollment lags. Contingency planning encourages the marketing staff to continually return to the market for potential marketing targets.

The primary target employers are best differentiated by four major criteria (size, premium differential, employee contribution, and employer cooperation) and two minor criteria (anniversary dates and union representation).

Marketing Themes and Approaches

M.D. Health Plan has developed specific marketing themes and approaches for the individual market segments (local and national employer groups, labor unions, consumers, Title XVIII and Title XIX recipients) within the State of Connecticut health insurance marketplace. Additionally, sales approaches, underwriting guidelines, product definitions, accessability strategies, account development and enrollment timeframes have been developed.

Advertising

In preparing the advertising campaign, a total media mix is being developed, in close coordination with M.D. Health Plan's Development Team of HMO specialists in order to achieve the required organizational objectives. As an aid in capturing the market, M.D. Health Plan intends to make full use of the media advertising resources available. The most effective means of conveying the M.D. Health Plan message to the Connecticut population will be multimedia: T.V., radio, print, and billboard.

The dominant concept in the entire advertising campaign will be making people aware of the existence of M.D. Health Plan. The level of knowledge acquired by the public about M.D. Health Plan benefits is not especially important in the beginning. The premarketing advertising program initially will not be aimed at motivating people to respond in any significant way.

More important, it is hoped that a level of name recognition and recognition that "it is the HMO preferred by your physician" will be attained through the use of media. With positive name recognition, it will be much easier for prospective enrollees to explain M.D. Health Plan and its benefits to their spouses, and for a positive decision to be forthcoming. This is one of the prime objectives of the use of media in the M.D. Health Plan service area. The concept of physicians sponsoring *and* capitalizing a HMO is new. This novelty puts a premium on the development of a positive, professional image from the outset.

Marketing Staff

M.D. Health Plan will have its own marketing department that initially will consist of a Vice President of Marketing, three District Managers, and six Account Executives. The marketing department will have three regional sales offices, in Fairfield, New Haven and Hartford counties.

The Fairfield Regional Sales Office will cover Fairfield and Litchfield Counties; the New Haven Regional Sales Office will cover New Haven, Middlesex and New London Counties, with the Hartford Regional Sales Office covering Hartford, Tolland and Windham Counties.

Conclusion

Connecticut, with its compact and comparatively upscale population, is a tempting target for outside commercial corporations seeking major profit centers in health care third party payment, at the expense of Connecticut's patients, hospitals, physicians and employers. M.D. Health Plan is designed to provide more prepaid health care of medically assured quality at competitive costs, by excluding such unproductive intermediaries between patients and their physicians, while reserving the widest possible patient choice in every part of the state. As such, we believe that M.D. Health Plan will achieve standard-setting excellence and cost-effectiveness in the public's interest.

Should Your Children Become Doctors?

LIEF C. BECK, J.D., CPBC

In my discussions with practicing physicians, I often hear this unsettling statement: "I've enjoyed medical practice, but I certainly hope my son (or daughter) won't go into medicine." While a certain level of frustration due to the changing health care scene is understandable, I cannot agree with the thought process behind that comment.

It puts before us a basic question: Has the medical profession declined and, if so, has the decline been so severe that the profession is now undesirable to existing physicians and their children. Based on my involvement with thousands of physicians and a wide variety of their personal and professional concerns, I do not equate the changing scene with decline. And even if one views the changes (those that have already occurred and those rapidly coming on) as "decline," medicine is still a highly desirable future for bright, well-motivated young people.

The "Golden Era"

Consider how presently successful physicians have come to our present times. Practicing in the 1960s and 1970s, they participated in the "golden era" of private practice. There was an explosive growth of new diagnostic capabilities, curative therapies and dramatic procedures which made medical practice intellectually demanding but exhilarating. Good physicians had an overwhelming supply of patients. As a result, physicians succeeded both professionally and financially, often in spite of their own business capacities.

Physicians acted as the captains of health care. They were respected at both the hospital and the office, and they derived satisfaction from their crowded waiting rooms, full of people seeking their advice and treatment.

These factors were accompanied by high incomes compared to other vocations. Though physicians spent long hours in training and work they had the opportunity for high earnings.

The so-called "golden era" was, however, not wholly desirable. Patients had little alternative but to wait for appointments and hours to be seen. They had to trust in the diagnosis and advice given by a selected physician.

I feel physicians of that era were often driven by the system and its demands to the point that their lives were one-dimensional. I considered it routine to hear complaints of an inability to participate in other activities or to cultivate outside interests to occupy retirement years. Divorces, stale marriages, and lack of parental involvement were common problems. In effect, professional practice activities dominated these physicians' lives.

Time Moves On

Other parts of society reacted to the circumstances of the golden era. Consumerism developed in all aspects of our economy interfering with the public's respect for physicians as authority figures. Patients began insisting on the right to decide for themselves what was best for their health. Malpractice actions skyrocketed as busy doctors lost the time and energy for one-on-one involvement with patients, and increased technological gadgetry implied infallible results.

Employers, insurance companies, and government—the third parties that paid most medical bills—began to rebel against the costs involved. Physicians' fees were only a moderate part of the health care cost picture, but the total amounts for health care were growing out of proportion with society's other perceived essentials.

Other businesses saw the health care industry's profit potential and resolved to compete for slices of it. When hundreds of billions of dollars are involved, much within the physicians' control, the influx—or even domination—of "big business" could hardly be avoided. While I do not necessarily espouse it, there is nothing improper in the concept of a business corporation directing a medical practice staffed by physicians who deliver technical services.

Despite these reactions within the system, more and more young people sought medical careers. A degree in medicine had long been synonymous with success in life—high income, intellectual challenge, and human service. Thus, the increasing doctor supply is not surprising.

The Turbulent '80s

In effect, the times changed—as they always do. Every other industry in our society is undergoing change, some far more traumatic than the changes for physicians, so medicine cannot expect otherwise. The features of medical

---

The author is a principal attorney and consultant with the Health Care Group, Bala Cynwyd, PA.

practice today are different from those of the "golden era," which are vastly changed from those of the '30s and '40s, and so on.

So here we are in the "turbulent '80s." Medicine, just as the other professions, is in considerable turmoil as the various pincers of supply, demand, technology, and activism attack traditional practice styles. These factors will not stop, indeed they are just warming up. Our society is too dynamic for any other scenario.

The New Generation

Today, young people may be entering the health care environment with a different view of life. I sympathize with those medical students, residents, and fellows who entered medicine relying on the golden era, but a considerable segment of this generation has another set of priorities. Their interests seem to emphasize completeness of life, commitment to quality and service, aversion to personal and financial risk, and satisfaction with only moderately high incomes.

A page one article in the *Wall Street Journal* on January 13, 1986, summarized some of these features in its headlines and subheadings: "More young doctors shun private practice, work as employes; HMOs and big groups free them from bad hours, hassles of small business; home for dinner on time." Among the article's major quotations were these ideas: "We want to be good parents and spouses as well. . . Workaholics make good doctors, lousy parents."

Nothing in the article suggested—nor do we detect—any diminution in the commitment to the patient or the compulsion to provide high quality service.

More physicians seem oriented to moderately paying positions of intellectual and human service orientation than in the past. I believe these people show traits that will be common in the next generation of doctors.

The other segment of the current generation, including doctors who have entered practice in the last few years, demonstrates the golden era's priorities in a shifted scene. Some will hook on, or have hooked on, to excellent practices and are likely to ride on in the old style for quite a while; others of them have not and will not.

Young doctors committed to traditional medical practice styles have the greatest stake in maintaining those features for the next twenty or thirty years. With so many pressures going the opposite way, it will not be surprising if these doctors must engage in concerns such as entrepreneurialism and marketing to retain their practices' dominant roles.

But the next generation—the children whose physician-parents say they would not encourage them to go into medicine—will start with a clean slate. They will know that medical practice will be no financial gravy-train, but I believe they can still expect comfortable incomes. In fact, I predict that physicians' incomes will continue indefinitely to be among the highest of the professions and vocations even though they will be proportionately lower than in the past.

These young people can enter medicine because of their commitment either to the intellectual challenge of solving the human body's riddles or to the opportunity of serving other people's needs, or both. They should expect a greater likelihood that those commitments will be accomplished without the overwhelming practice demands that changed their doctor-parents' lives. And they will hope to do so within more balanced lives in which family priorities and other valuable concerns and interests have a chance to blossom.

For those potential physicians who have the characteristics, I expect ample opportunities to be valued as entrepreneurs and executives. Health care will always require good physician-leaders, and leadership traits are becoming more valuable these days. There *will* be private medical practices—a great many of them—and they will offer opportunities for excellent clinicians and somewhat separately for effective leaders. Progression from one category to the other may be similar to an engineer's promotion from his or her peer ranks into a large commercial corporation's executive track.

That's not a bad scenario for your children even though it is vastly different from yours. The very special values of a medical career will not change, and they may well be allowed to shine. C. Everett Koop, MD, a respected medical practitioner throughout the "golden era" and now Surgeon General of the United States, said:

> I envy those starting a career in medicine. I regret some things that are going on—the lack of good doctor-patient relationships, the preoccupation with money and power, the growth of regulation, and so on. But I also know that medicine still offers the individual one of the most satisfying ways to make a life that I have ever encountered (*Pennsylvania Medicine*, December, 1985, page 31).

1-800-922-3385

The only number you will ever need when acquiring a practice management system for your office. Find out why hundreds of Connecticut physicians dialed this number to obtain:

- Savings in time, money, paper and postage.
- Professional training and support.
- Cash flow advantages of true electronic claims submission.
- Flexible and highly functional software.
- Fixed rate financing at 6.5%.
- Complete installation and service by courteous professionals.

We have put it all together! Call Bob Seekamp, Director of Marketing, to find out how easy it would be to put ProMed™ to work for you.

ProMed™
SYSTEMS INCORPORATED

IBM
Personal Computers

221 Whitney Avenue
New Haven, Connecticut 06511
(203)773-8255

A subsidiary of:
Blue Cross
Blue Shield
of Connecticut

Metered Dose Inhalers

THOMAS P. LOMBARDI, PHARM.D.

Topical administration via the inhaled route is a frequently prescribed method of drug delivery for patients with asthma and other diseases involving airflow obstruction. This method of drug administration offers several advantages over the oral route, such as smaller doses, a quicker onset, and a lower incidence of unwanted effects. Advantages over the intravenous route include fewer adverse effects and noninvasive drug administration. The metered dose inhaler (MDI) is the most frequently used system for drug delivery via the inhaled route. It is commonly prescribed for the administration of adrenergic agents, corticosteroids and cromolyn (disodium cromoglycate).[1,2]

MDIs have some inherent problems. The first problem is that only approximately 10 percent of the dose administered actually reaches the lungs where the presumed beneficial action will take place, while 80 percent is deposited in the oropharynx. Oropharyngeal deposition causes an increase in systemic absorption which may enhance drug toxicity and also may increase the incidence of local adverse effects, such as oral mucosal irritation, oral candidiasis and dysphonia. Secondly, a large percentage of patients use improper technique in the self-administration of inhaled agents. To provide maximal therapeutic efficacy and minimal systemic and local adverse reactions it is imperative that proper technique be utilized when the MDI is the method of drug administration.[1]

Description and Function of the MDI

The MDI typically has two parts consisting of: (1) a metered valve canister which contains a solution or suspension of the active drug, propellants (usually fluorocarbons) and stabilizers, and (2) an actuator, into which the canister fits and which directs the aerosol flow when the MDI is activated.

Once the MDI is activated, the drug is dispersed into the mouth in the form of small droplets or particles. Several factors that determine the ultimate penetration and deposition of the drug within the tracheobronchial tree include the size and shape of the particle and the patient's airway. Following passage through the oral cavity the particles are deposited in the airways by three mechanisms. The large particles (10 to 100 um) are deposited by impaction in the airways where airflow is high, such as the oropharynx and upper broncheal tree. The medium size particles (0.1 to 10 um) are deposited by gravity sedimentation in the smaller bronchi and bronchioles, while the small particles (less than 0.1 um) are deposited by diffusion or Brownian movement.[1]

Technique of Administration

As stated earlier, only about 10% of active drug reaches the airways under optimal inhalation conditions. By using improper technique this amount is decreased, thus rendering the drug ineffective for its prescribed purposes. It has been estimated that as many as one third to one half of patients using MDI's use them incorrectly, either due to the lack of coordination with respect to activation of the device and inhalation (hand-lung discoordination) or the inadequate preparation of the MDI for use.[3] The confusion of proper administration may begin when the physician prescribes the MDI without demonstration of proper use of the device. The patient or parent will subsequently obtain the prescription and refer to the package insert for directions if the dispensing pharmacist does not adequately counsel the patient. Upon reading the package insert, the patient may interpret the meaning incorrectly thus resulting in inadequate drug delivery. Another reason for patient confusion may arise from conflicting information provided by the physician, pharmacist and the package insert.[3-5]

Several factors concerning technique of administration have been addressed in the literature and will be discussed here. The first is physical placement of the actuator with respect to the mouth. Although, the majority of manufacturers currently recommend actuator placement "well into the mouth, closing the lips tightly around it," this method of placement does not provide the most efficient delivery of drug. By following these directions, greater

---

THOMAS P. LOMBARDI, PHARM.D., Post-doctoral Pharmacy Fellow, Hartford Hospital and Assistant Clinical Professor, University of Connecticut School of Pharmacy, Farmington, CT.

This new series on Drug Information Updates from the Hartford Hospital are supplied by Charles H. Nightingale, PH.D., Director of Pharmacy Services, Hartford Hospital.

Editors: Moses Sing Sum Chow, Pharm.D. and Robert A. Quercia, M.S., R.Ph.

than 50% of the particles impact in the oropharynx because of high velocity delivery (as fast as 50 to 100mph), large particle size and minimal evaporation of propellants. However, several studies have shown that placement of the actuator, 3 to 4cm (1.2 to 1.5 inches) in front of an open mouth will result in decreased impaction of particles in the posterior pharynx and mouth. This occurs because of a decrease in particle size and velocity secondary to evaporation of the propellants.[6-9] Therefore, it is important to instruct the patient to use the open mouth technique which may not reflect the technique suggested in the package insert.

A second aspect of inhalation technique that is controversial is at what lung volume should activation of the MDI and inhalation of the drug be initiated? Studies have shown that FEV_1 (forced expiratory volume in one second) is not different when the activation of the device and inhalation of the drug occurs at the start of inspiration or if activation of the MDI occurs towards the end of inspiration,[6,10] while other studies have reported that optimal effects occur when inhalation of the drug takes place at the start of inspiration.[11,12] Theoretically, drug delivery to the entire lung field would be maximal if inhalation of the drug was initiated at the start of an inspiration from residual volume.

Rate of inspiration is the third factor that affects impaction of drug particles. Several studies have noted that impaction is increased when the inspiratory rate is elevated and that intrapulmonary drug distribution was improved following a slower inspiration.[13]

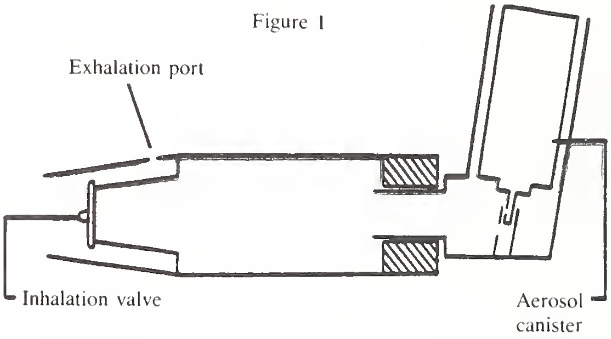
Also affecting deposition of the drug is the depth of inhalation. Studies have shown that following a deep inhalation, a larger portion of the drug is deposited in the lung.[13,14]

Once the drug is delivered to the lung, the final consideration is how long should the patient hold his or her breath? Breath holding allows for sedimentation via gravity to occur with those particles that would otherwise remain air-borne. If the breath is quickly exhaled these airborne particles would be blown off with the breath. Ideally, the patient should hold their breath for as long as possible. Realistically, a patient should be asked to hold their breath for at least 5 to 10 seconds to allow for gravity sedimentation.[6]

Spacers

To provide a possible mechanism for decreasing deposition in the oropharynx and to overcome hand-lung discoordination (problems with activation at the start of inspiration), the use of a spacer device has been suggested.[15] Several types of spacers have been marketed including collapsible tubes, cones and those that are pear-shaped.[16] One spacer that appears to be beneficial is the Aerochamber®. The Aerochamber® is designed to maintain the aerosol particles in a suspended state until inhalation occurs (Figure 1).[17] Studies report that the use of this device with a MDI will both decrease deposition of drug in the oropharynx and solve the problem of hand-lung discoordination.[18] However, all studies utilizing the Aerochamber® have shown that there is no added beneficial effect when patients could properly self-administer the MDI without a spacer by the open mouth technique.[19,20] The spacer allows for a short pause between actuation of the MDI and inhalation of the drug.

Figure 1



Aerochamber with a standard metered dose inhaler attached.

Summary

1) The MDI is a useful way to administer adrenergic agents, corticosteroids and cromolyn to the patient with a respiratory disease.

2) Proper administration technique must be utilized to assure maximal benefit.

3) Proper administration technique supported by the literature includes:

   a. shake the inhaler well and assemble.
   b. place the inhaler 3 to 4cm (1.2 to 1.5 inches) away from an open mouth.
   c. activate the inhaler upon start of a slow, deep inspiration following a comfortable exhalation.
   d. hold breath for at least 5 to 10 seconds before exhalation.

4) A spacer may be used when hand-lung discoordination is a problem or when local adverse effects due to oropharyngeal deposition occurs.

REFERENCES

1. Harper TB, Strunk RC. Techniques of administration of metered-dose aerosolized drugs in asthmatic children. Am J Dis Child 1981, 135:218-21.
2. Alderson SH, Warren RH. Pediatric aerosol therapy guidelines. Clin Pediatr 1984, 23:553-7.
3. Augusti AGN, Ussetti P, Roca J, et al. Proper use of metered dose inhalers. Chest 1985, 88:159-60.
4. Frew AJ, MacFarlane JT. Poor inhaler technique may be perpetuated by clinical staff. Practioner 1984, 228:883.
5. Lobeck F, Ryback MJ. Proper inhaler technique. Clin Pharm 1983, 2:512.
6. Dolovich M, Ruffin RE, Roberts R, Newhouse MT. Optimal delivery of aerosols from metered dose inhalers. Chest 1981, 80:911-15.
7. Connolly CK. Method of using pressurized aerosols. Br Med J 1975, 3:21.

8. Thomas P, Williams T, Reilly PA, Bradley P. Modifying delivery technique of fenoterol from a metered dose inhaler. Ann Allergy 1984, 52:279-81.

9. Newhouse MT, Dolovich M. Proper use of metered dose inhalers. Chest 1985, 88:159.

10. Riley RJ, Weitz BW, Edelman NH. The response of asthmatic subjects to isoproterenol inhaled at different lung volumes. Am Rev Resp Dis 1976, 114:509-15.

11. Newman SP, Pavia D, Bateman JRM, et al. Bronchodilator response after administration of pressurized aerosols of different lung volumes in patients with airway obstruction. Clin Sci 1979, 56:10-11.

12. Miller WF, Cherniack RM, Shapiro BA, et al. Breathing easy. Respir Care 1978, 23:492-511.

13. Goldberg IS, Lourenco RV. Deposition of aerosols in pulmonary disease. Arch Intern Med 1973, 131:88-91.

14. Palmes ED, Wang C, Goldring RM, et al. Effect of depth of inhalation on aerosol persistance during breath holding. J Appl Physiol 1973, 34:356-60.

15. Toogood JH, Baskerville J, Jennings B, et al. Use of spacers to facilitate inhaled corticosteroid treatment of asthma. Am Rev Resp Dis 1984, 129:723-9.

16. Lonig P. Spacer devices used with metered-dose inhalers. Breakthrough or gimmick? Chest 1985, 88:276-84.

17. Corr D, Dolovich M, Ruffin R, et al. Design and characteristics of a portable breath actuated, particle size selective medical aerosol inhaler. J Aerosol Sci 1982, 13:1-7.

18. Corr D, Dolovich M, Ruffin R, et al. The aerochamber: A new demand-inhalation device for delivery of aerosolized drugs. Am Rev Resp Dis 1980, 121:123S.

19. Gurwitz D, Levison H, Mindorff C, et al. Assessment of a new device (Aerochamber) for use with aerosol drugs in asthmatic children. Ann Allergy 1983, 50:166-70.

20. Dolovich M, Ruffin R, Corr D, et al. Clinical evaluation of a simple demand inhalation MDI aerosol delivery device. Chest 1983, 84:36-41.

Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

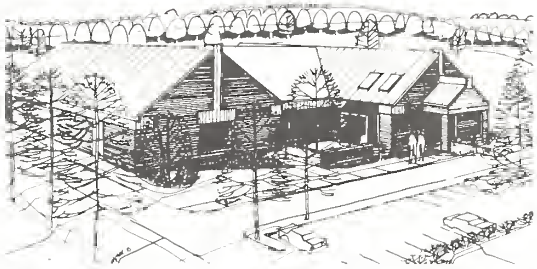
In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:

- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:

- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Médical) for Ophthalmology.
- CO_2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

March-October 1987 Tues. Eves. 4-7 p.m.

EMERGENCY MEDICINE BOARD REVIEW #312

NYU Medical Center

TUITION: $1200
Accreditation: 63 AMA Category I credit hours.
Pending: 63 AAFP and 63 ACEP credit hours.

For New York metropolitan area physicians: Twenty one weekly 3-hour sessions spread over a 21 week period to prepare for the written portion (Part I) of the Emergency Medicine Board Examination, plus two, 2-hour ("1 on 1") patient management encounters for each registrant that simulates and prepares candidates for the oral portion (Part II) of the Board Examinations.

Information available on #315 EMERGENCY MEDICINE,
May 11-14, 1987 Monday-Friday

FOR FURTHER INFORMATION: NYU Post-Graduate Medical School,
550 First Avenue, New York, N.Y. 10016 (212) 340-5295 (24-hour service)

NEW YORK FERTILITY
RESEARCH FOUNDATION, INC.

For the Investigation of Problems of
Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

R FOR PHYSICIANS
CME CREDITS*
FOR SEMINARS

2nd ANNUAL

Medical Expo '87

HARTFORD CIVIC CENTER
APRIL 1 & 2

HARTFORD COUNTY MEDICAL ASSOCIATION 1792

SPONSORED BY
THE HARTFORD COUNTY
MEDICAL ASSOCIATION

*PENDING APPROVAL

SAVE THE DATES

KEYNOTE SPEAKER —
RICHARD L. REECE, M.D.
Publisher of the *Reece Report*

"Information for Physicians in Control"

OVER 240 EXHIBITS

Practice & Office Management
Service & Suppliers ● HMOs
Medical Supplies & Equipment
Financial Services ● Computers
& Software ● Pharmaceuticals
Laboratory & Hospital Services
AND MUCH MORE

FOR INFORMATION CALL **ROBERT DONNELL PRODUCTIONS**
(203) 233-3654 or TOLL FREE 1-800-243-9774

Infantile Apnea and Home Monitoring

NATIONAL INSTITUTES OF HEALTH

Apnea has long been recognized as a clinical problem in infants. Considerable investigative and clinical attention has been directed toward this condition. Although progress has been made and certain categories of apnea have been delineated, etiology remains unclear in many situations. Furthermore, the condition is common in certain populations, such as in infants born prematurely. Whether an apneic event occurs independently or in association with a pathophysiologic process such as sepsis or an environmental factor such as change in temperature, there is concern about possible effects of interrupted breathing.

Measurement of normal and abnormal physiologic processes such as breathing patterns is facilitated by devices. Monitors have emerged in the laboratory and hospital and have contributed to the discovery of new knowledge and management of abnormalities. Monitoring in this document refers to the use of electronic devices. Technical advances, especially in electronics, have resulted in many devices that seem to be accurate, useful, and safe. Others are of questionable value.

Sudden infant death syndrome (SIDS) was recognized before this century but did not receive close attention until relatively recently. Public Law 93-270, The Sudden Infant Death Syndrome Act of 1974, gave the Public Health Service the mandate to stimulate research and administer counseling and information programs.

In 1972, a paper reported that two of five infants with documented prolonged sleep apnea died of SIDS. A great deal of attention during the 1970s was directed toward the relationship of apnea and SIDS. As the 1970s and 1980s unfolded, the use of monitors in the home environment to detect apnea expanded. Research and clinical programs produced many reports about the merits of this activity, and controversy emerged.

In an effort to resolve this controversy, the Consensus Development Program at the National Institute of Health has now directed its attention to this subject, and the panel for this Consensus Development Conference on Infantile Apnea and Home Monitoring was asked to focus on the following questions:

1. What is known about the relation of neonatal and infant apnea to each other and to mortality (especially SIDS) and morbidity in infancy?
2. What are the efficacy and safety of currently available home devices for detecting infant apnea?
3. What evidence exists regarding the effectiveness of home monitoring in reducing infant mortality (especially SIDS) and morbidity?
4. Based on the above, what recommendations can be made at present regarding the circumstances for use of home apnea monitoring in infancy?
5. What further research is needed on home apnea monitoring for infants?

Definitions

Expression of concepts and terminology has been difficult. Continued intense efforts directed toward definitions are important. The following definitions are used in this document.

Apnea—Cessation of respiratory air flow. The respiratory pause may be central or diaphragmatic (i.e., no respiratory effort), obstructive (usually due to upper airway obstruction), or mixed. Short (≤ 15 seconds), central apnea can be normal at all ages.

Pathologic Apnea—A respiratory pause is abnormal if it is prolonged (≥ 20 seconds) or associated with cyanosis; abrupt, marked pallor or hypotonia; or bradycardia.

Periodic Breathing—A breathing pattern in which there are three or more respiratory pauses of greater than three seconds' duration with less than 20 seconds of respiration between pauses. Periodic breathing can be a normal event.

Apnea of Prematurity (AOP)—Periodic breathing with pathologic apnea in a premature infant. Apnea of prematurity usually ceases by 37 weeks' gestation (menstrual dating), but occasionally persists to several weeks past term.

Asymptomatic Premature Infants—Preterm infants who either never had AOP or whose AOP has resolved.

From the Office of Medical Applications of Research, National Institute of Health, Bethesda, Md.

Reprint requests to Office of Medical Applications of Research, Bldg 1, Room 216, National Institutes of Health, Bethesda, MD 20205 (Michael J. Bernstein).

Symptomatic Premature Infants—Preterm infants who continue to have pathologic apnea at the time when they otherwise would be ready for discharge.

Apparent Life-Threatening Event (ALTE)—An episode that is frightening to the observer and that is characterized by some combination of apnea (central or occasionally obstructive), color change (usually cyanotic or pallid but occasionally erythematous or plethoric), marked change in muscle tone (usually marked limpness), choking, or gagging. In some cases, the observer fears that the infant has died. Previously used terminology such as "aborted crib death" or "near-miss SIDS" should be abandoned because it implies a possibly misleading close association between this type of spell and SIDS.

Apnea of Infancy (AOI)—An unexplained episode of cessation of breathing for 20 seconds or longer, or a shorter respiratory pause associated with bradycardia, cyanosis, pallor, and/or marked hypotonia. The terminology "apnea of infancy" generally refers to infants who are greater than 37 weeks' gestational age at onset of pathologic apnea. AOI should be reserved for those infants for whom no specific cause of ALTE can be identified. In other words, these are infants whose ALTE was idiopathic and believed to be related to apnea.

Sudden Infant Death Syndrome (SIDS)—The sudden death of any infant or young child, which is unexplained by history and in which a thorough postmortem fails to demonstrate an adequate cause of death.

A pediatrician commentator at the public meeting stated: "We need to be taken out of confusion of regional opinions, the pressures of public perceptions, and unfounded technological claims and be given guidance on what we do while we await data."

It is hoped that this consensus statement and the final report that follows will serve as helpful educational tools and provide guidance while stimulating the research process leading to new knowledge.

---

1. What Is Known About The Relation Of Neonatal And Infant Apnea To Each Other And To Mortality (Especially SIDS) And Morbidity In Infancy?

There is no evidence that apnea of prematurity is an independent risk factor for infant apnea.

Apnea of prematurity, a developmental phenomenon, usually resolves by the time the infant is 34 to 36 weeks' gestational age. In many infants, a pattern of periodic breathing may persist until several weeks past term; in fact, some periodic breathing is probably normal at any age.

There is evidence that apnea of prematurity is not a risk factor for SIDS.

Although preterm infants make up a disproportionate share of all infants with SIDS (18%), there is evidence that apnea of prematurity is not an independent risk factor for SIDS. In the NICHD Cooperative Epidemiological Study of SIDS Risk Factors, there was no difference in the incidence of reported (hospital record) apnea in the infants dying of SIDS compared with a control group matched for birth weight and ethnicity. This observation was true for all birth weight specific groups.

An apparent life-threatening event is a risk factor for sudden death (including SIDS).

The term ALTE describes a clinical syndrome. There are a variety of identifiable diseases or conditions that can cause such episodes (e.g., ALTE secondary to gastroesophageal reflux or ALTE secondary to seizures), but in approximately one-half of the cases, despite extensive workup, no cause can be identified. These episodes can occur during sleep, wakefulness, or feeding and are in infants who are generally of greater than 37 weeks' gestational age at the time of onset.

The reported mortality of patients with apnea of infancy (AOI), some of whom have been electronically monitored at home, varies from 0% to 6%. This variability is due to differences in terminology and the inherent heterogeneity of the population.

The mortality of other ALTE subgroups is unknown. It must not always be assumed, however, that once a specific cause of ALTE has been identified, the infant is no longer at increased risk of sudden unexpected death. Certain subgroups of infants with ALTE may be at higher risk.

There are data to suggest that infants presenting with an apneic spell during sleep who were perceived to require resuscitation may have a mortality as high as 10% despite the use of home monitors. Infants with this ominous history are rare. Infants with two or more such episodes may have up to a threefold further increase in risk of death.

There is no evidence that apnea of prematurity per se causes subsequent morbidity.

Although early studies suggested an increased incidence of spastic diplegia in preterm infants with a history of apnea and bradycardia, many of these infants may have had other conditions that may have caused the apnea and could confound studies of developmental outcome.

ALTE may be associated with an increased morbidity.

Rarely, infants who experience severe ALTE also develop serious neurodevelopmental sequelae (e.g., vegetative state). Some ALTE survivors demonstrate behavioral and neurodevelopmental abnormalities, but there is no proof that this is a result of ALTE.

Infants with a history of ALTE or apnea of prematurity comprise only a very small proportion of total SIDS cases.

The NICHD Cooperative Epidemiological Study of SIDS cases found only 2% to 4% had a hospital record of apnea of prematurity and less than 7% had a history of ALTE.

2. What Are The Efficacy And Safety Of Currently Available Home Devices For Detecting Infant Apnea?

Essential Features

An infant cardiorespiratory monitor must meet essential criteria to be of clinical value. Primary among these is the ability to recognize central, obstructive, or mixed apneas and/or bradycardia as they occur. Alarms that accurately reflect the predisposing condition must consistently alert and be understandable to the care giver. In other words, the monitor must be efficacious in recognizing apnea and alarming for prolonged apnea. In addition, the monitor must be capable of monitoring its own internal essential functions to assure proper operation. It must be noninvasive and easy to use and understand.

The best of the currently available impedance-based cardiorespiratory monitors meet many but not all of the essential criteria.

Although there are several methods that can be used for sensing breathing, only a few of these have been applied in currently available home cardiorespiratory monitors. Of these, the transthoracic electrical impedance monitors are by far the most frequently applied and have the widest availability in the United States. These monitors are generally efficacious in identifying and alarming on central apneas; however, there are some situations where "breaths" are detected during apparent apneas (false negative) and other cases where apneas are indicated even though the infant is breathing (false positive). The former often is related to cardiogenic artifact, a significant problem with impendance monitors, or to motion artifact resulting from active or passive infant movement. The latter is associated with low amplitude respiration signals that can occur with impedance monitors even though other sensors of ventilation simultaneously monitoring the infant do not show significant hypoventilation. False positive alarms also can be seen in some rare cases as a result of the signal processing in the monitor to reduce false negative apnea detection. Obstructive and mixed apneas, on the other hand, are not directly detected by presently available impedance monitors.

Some noninvasive methods of sensing breathing other than transthoracic impedance might be more efficacious than impedance.

Cardiogenic artifact can be significant with transthoracic impedance monitors, and it also is seen to a lesser extent in other sensors of breathing. These other methods also may have reduced sensitivity to some infant motion. Primary among these sensors are the abdominal strain gauge, inductance plethysmograph, and nasal thermistor. The latter two also may be able to detect obstructive apnea.

Cardiac monitors may be sufficient for monitoring some infants.

Cardiac monitors, or the cardiac monitor portion of a cardiorespiratory monitor, that utilize the electrocardiogram have fewer false positive or negative alarms than the respiration monitors. Although these devices do not meet the essential criteria listed above and are affected by motion artifact, they can, for the most part, reliably recognize conditions of tachycardia and bradycardia. In some cases, it may be sufficient to monitor heart rate alone for infants at home. Heart rate monitors are less expensive than cardiorespiratory monitors, which makes this alternative attractive. Future work is needed to determine whether this is a valid approach.

Desirable Features

Other features of monitors for home use might be desirable, even though no documented evidence exists to that effect at the present time. These features include the capability of capturing and storing patterns surrounding significant events for later analysis, detection of hypoxemia secondary to hypoventilation or apnea as well as the detection of the hypoventilation itself, estimation of tidal volume, and the identification of heart rate patterns and variability as well as cardiac arrhythmias. No presently available home monitor meets all these criteria. Thus, new instruments should be developed so that monitors with these features can be made available for research purposes.

It is important to note that the development of hard copy monitors alone is not sufficient to identify false alarms. It is essential that these devices provide sufficient information to fully characterize "alarm conditions." Even so, it will not be possible to use this technique to document false negative apnea detection.

The pulse oximeter offers opportunities to monitor blood hemoglobin oxygen saturation as a means of detecting hypoxemia secondary to apnea and hypoventilation. This instrument should be evaluated further in this application, with special attention paid to the effect of signal processing on the measured signal and methods of minimizing motion artifact.

Other Considerations

A set of minimal standards for monitors is needed.

An important issue in considering monitor efficacy is the development of appropriate standards and test methods. The development of such standards with clinical as well as technical input to the process needs to be encouraged. Testing procedures must be relevant to the clinical application of the devices if they are to be meaningful. Manufacturers should publish performance characteristics of monitors for use by physicians when prescribing. The need for mandatory standards may be necessary if voluntary standards cannot be developed and followed within a reasonable time (one to two years). The reporting of problems of efficacy and safety with monitors must be mandatory.

The marketing of "over the counter" monitors should be strongly discouraged.

Monitoring devices should not be made available to consumers without professional recommendation and supervision. Because it is unlikely that the efficacy of such devices would be markedly improved over present monitors, such widespread availability of monitors might lead to a significant increase in the number of infants referred to apnea centers due to false alarms of the instrument. Furthermore, the support systems available to parents who purchase such machines would be nonexistent or not uniform. In addition, the care giver needs to be specially trained in the use of the monitor, including knowing how to operate and apply the instrument and knowing what actions to take when the alarm sounds. This training is essential for monitors to be effective.

With the exception of a few isolated incidents, home cardiorespiratory monitors appear to be safe.

A few isolated problems have been reported, and these problems subsequently have been largely corrected.

3. What Evidence Exists Regarding The Effectiveness Of Home Monitoring In Reducing Infant Mortality (Especially SIDS) And Morbidity?

Effectiveness of Home Monitoring

For the purpose of this statement, effectiveness means the ability to assist in preventing death of infants for whom home monitors are prescribed. This implies a proper choice of home monitoring instruments, adequate training, and continuous logistic and professional support of care takers and their acceptance and persistence with recommended management. In addition, effectiveness implies the ability of care takers to abort an apneic episode by techniques they have learned, including resuscitation.

Home Monitoring for ALTE

There are no reports of scientifically designed studies of the effectiveness of home monitoring for ALTE. There are, however, several case studies from apnea programs that suggest that home monitoring may be an appropriate intervention for some infants. These include infants with ALTE who present with an initial episode requiring vigorous stimulation or resuscitation.

Home Monitoring for Subsequent Siblings of SIDS Victims

There are no reports of scientifically designed studies of the effectiveness of home monitoring for subsequent siblings of SIDS victims. While this is an emotionally charged issue, the decision to monitor subsequent siblings in families with a single SIDS loss cannot be substantiated from existing clinical reports. No clinical studies have adequately investigated home monitoring of siblings of SIDS or the survivor of a twin pair.

Home Monitoring for Premature Infants

There are no reports of scientifically designed studies of the effectiveness of home monitoring of premature infants. Reports from some neonatal intensive care units indicate that for some symptomatic premature infants home monitoring may be a successful alternative to prolonged hospitalization after the infants meet all other criteria for hospital discharge.

Home Monitoring for Other Pathologic Conditions

There are no reports of scientifically studies of the effectiveness of home monitoring for other pathologic conditions. Clinical evidence may support the decision to monitor infants with tracheostomies at home. Other conditions with high postneonatal mortality such as severe bronchopulmonary dysplasia may warrant home monitoring, although supportive data are lacking.

SIDS Mortality Trends and Home Monitoring

Evidence from several communities in which SIDS surveillance has been maintained for a decade or more indicates that annual SIDS rates vary from year to year but have not declined perceptibly since the introduction of home monitoring. The proportion of SIDS victims with a history of apnea is too small for the impact of home monitoring of this group to be perceived. Mortality from all other causes of death during infancy has fallen dramatically over the corresponding timespan. It is, therefore, unlikely that an increase in deaths from some other cause has been offset by benefits from the use of home monitors in the community.

Home Monitoring and Morbidity

There are no studies of long-term morbidity associated with apnea or the use of home monitors, but clinical evidence suggests that research on this question might be fruitful. No evidence exists to support the contention that home monitoring prevents development of seizures, intellectual deficits, or developmental disorders.

Problems in Dealing With Studies of Effectiveness

No randomized studies of adequate size have addressed effectiveness of home monitoring for any category of patients. There have been several published clinical reports purporting to assess mortality among monitored infants. The data from these studies are invariably presented without appropriate comparison groups. They address (1) apnea with "successful intervention," (2) deaths following apnea where compliance has been questionable, and (3) deaths in spite of appropriate parental response to monitor alarms. Without data on all infants monitored (survivors as well as decedents), these studies are inconclusive and potentially misleading.

The ability of care takers to consistently determine the true nature of an alarm from a home monitor is questionable. This poses a problem in assessing effectiveness. Some studies have used parental reports as a means of evaluation. However, one study reported that most alarms reported by parents as truly life-threatening were not.

4. Based On The Above, What Recommendations Can Be Made At Present Regarding The Circumstances For Use Of Home Apnea Monitoring In Infancy?

Experience suggests that cardiorespiratory monitoring is effective in preventing death due to apnea for certain selected infants but is clearly inappropriate for others. For some infants, the appropriateness of home monitoring is uncertain. In deciding to monitor or not to monitor, the primary objective is to serve the best interest of the infant and therefore the decision should primarily be based on the infant's history, for example, has the infant had recurrent, severe apnea. For all groups, it should be clearly understood that monitoring cannot guarantee survival. As summarized below, monitoring creates its own risks for infants.

Cardiorespiratory monitoring or an alternative therapy is medically indicated for certain groups of infants at high risk for sudden death.

These groups include infants with one or more severe ALTE's requiring mouth-to-mouth resuscitation or vigorous stimulation, symptomatic preterm infants, siblings of two or more SIDS, and infants with certain diseases or conditions such as central hypoventilation. Although no controlled clinical trials have rigorously proved monitoring to be effective in these groups, evidence indicates that these infants are at an extraordinarily high risk for dying and that lives can be saved. Alternative or ancillary treatments such as methylxanthines and/or hospitalization may be considered for specific infants.

Cardiorespiratory monitoring is not medically indicated for normal infants.

SIDS occurs at a rate of approximately two per 1,000 live births in the United States. For the normal newborn, the risks, disadvantages, and costs of monitoring outweigh the possible benefit of preventing SIDS.

Routine monitoring of asymptomatic preterm infants, as a group, is not warranted.

Individual preterm infants such as those with certain residual diseases may be considered for monitoring.

For several groups, currently available evidence on the benefits and risks of monitoring and alternative treatment is inconclusive.

These groups include siblings of SIDS infants, infants with less severe ALTE episodes, infants with tracheostomies, and infants of opiate- or cocaine-abusing mothers. For each of these groups, the risk of death is elevated to some degree. For infants in this category, the decision to monitor must be made by the family after a full discussion with the physician of the potential benefits as well as the psychosocial burdens. The decision reached will be specific to the infant, and there are no hard and fast guidelines that will apply to all cases. No family in this category should be made to feel that monitoring is necessary.

The pneumogram should not be used as a screening tool.

Pneumograms have been widely used as *screening tests* to predict SIDS or life-threatening apnea in asymptomatic preterm and term infants. However, no prospective controlled study has confirmed that these 12- to 24-hour recordings of heart rate and thoracic impedance are predictive of SIDS or life-threatening apnea. In fact, in one study, similar cardiorespiratory recordings on over 9,000 infants have not demonstrated differences between subsequent SIDS victims and surviving infants. To premature infants, SIDS siblings, or ALTE infants, no studies to date have proved that the pneumogram has *predictive value* that distinguishes infants who will survive from those who will die. However, pneumograms occasionally may be helpful in *clinical management*. For instance, pneumograms may be used to distinguish false from true apnea monitor alarms.

Decisions for home monitoring discontinuation should be based on clinical criteria.

The criteria for monitor discontinuation should be based on the infant's clinical condition. Clinical experience and the literature support monitor discontinuation when ALTE infants have had two to three months free of significant alarms or apnea (vigorous stimulation or resuscitation was not needed). Additionally, assessing the infant's ability to tolerate stress (e.g., immunizations, illnesses) during this time is advisable. Requiring one or more normal pneumograms before discontinuing the monitor may prolong needlessly the monitoring period.

Decisionmaking with respect to home monitoring is a collaborative enterprise.

When a clinician has determined that clinical indications justify the use of a home monitor, the clinician must seek the cooperation and permission of the parent or guardian of the infant to be monitored. Parents, acting as proxies for their infant, and clinicians should attempt to reach a joint decision on whether home monitoring should be undertaken. The physician should disclose the available information on alternative treatments, benefits, and limitations of the monitors. Understanding the impact of monitoring on the family should be a central consideration in the decision. The literature on the effects of monitoring in families has serious flaws, but it suggests that monitoring can be *both* a source of stress and a source of support and reassurance for parents. Some of the stresses parents report are related to monitor equipment problems, isolation, the extra demands and responsibility of caring for a monitored infant, the cost of monitoring, difficulty in finding child care, sibling rivalry, depression, and marital strains. Parents also report that home monitoring can be reassuring for those whose infants are judged to be at medical risk.

In discussing these substantive matters with parents, a good faith effort should be made to take into account the values and the social and economic circumstances of the parents in so far as they are relevant to the alternative selected.

Finally, institutions and clinicians might find it useful to relay the information in writing after the discussion of these matters to ensure understanding of and consistency in the information conveyed.

Ordinarily, parents and clinicians will agree about whether to use the monitor. However, there will be some instances of disagreement.

When the clinician concludes that cardiorespiratory monitoring is medically indicated and the parents disagree, the clinician has several options. The clinician may defer to parental preferences, continue hospitalization, seek suitable assistance and support to facilitate monitoring, and, in the rare case, initiate procedures to remove the infant from the home. Such decisions should be reached on a case-by-case basis, taking into account factors specific to the situation, including the medical needs of the infant, the home environment, and the expectation that, on balance, a better outcome is likely in another caregiving environment.

When cardiorespiratory monitoring is not indicated (see above), clinicians are encouraged not to prescribe monitors when they are requested by parents. When evidence on the benefits and risks of monitoring or alternative treatments is inconclusive and there is disagreement, the decision whether to use a monitor should be left to the parents. Deferring to parental choice is appropriate because the parents are the ones who have to implement the decision and take primary responsibility for its consequences.

An adequate monitoring support system encompasses medical, technical, psychosocial, and community support services.

This coordinated, multidisciplinary approach can include hospital-based monitoring programs, community-based physicians, health care agencies, durable medical equipment vendors, local public health and social service agencies, and peer or voluntary support groups. In the hospital, the support system includes: (1) an informed consent process; (2) an assessment of the family's strengths, weaknesses, and support resources; (3) anticipatory guidance to help prepare the family for the demands of home monitoring; (4) a thorough explanation of monitor operation, trouble-shooting, and a written monitor service contract; (5) training and demonstrated proficiency in infant CPR and resuscitation methods; (6) written guidelines on home monitoring; and (7) discharge planning, including discussion of followup services and procedures for discontinuation. After discharge, formal and regular followup contact with the family should be maintained. Consultant and primary care physicians must coordinate their activities. There should be 24-hour availability of monitor program support staff and monitor repair or replacement. Access to psychosocial support mechanisms, including community social services such as public health nurses and social work, peer support, and respite care, should be provided. Extra assistance at the time of monitor termination should be available.

Effective monitor use is dependent on the technical support network outside the home. A formal support system for users includes mechanisms for quality assurance, maintenance service and replacement, education and users manuals for parents and physicians on monitor operation and maintenance. In addition, means for communication about machine problems among manufacturers, parents, physicians, and vendors are essential to ensure the safety of the apnea monitor in the home. It is important to emphasize that home monitoring is not one but a cluster of interrelated services.

5. What Further Research Is Needed On Home Apnea Monitoring For Infants?

There should be definitive prospective studies involving randomization and concurrent control populations of issues involved in home monitoring for apnea. Unless studies are conducted soon, we may lose the opportunity and pay a price in unforeseen and untoward outcomes.

The fact that controversy exists regarding home apnea monitoring reflects an inadequate fund of knowledge. This was constantly brought up in testimony at the conference as well as in the deliberations of the panel.

From the perspective of advancing SIDS research, it is important to focus on those infants dying of SIDS. For clinicians, however, it is important to look carefully at all of these infants who die suddenly and unexpectedly of any cause (e.g., from aspiration pneumonia, upper airway obstruction, chronic lung disease). Many deaths are potentially preventable, although they should not be called SIDS.

Sudden death, including SIDS, is a major part of all postneonatal infant deaths. Furthermore, there may be multiple causes of SIDS. Therefore, the panel makes the following general recommendation:

- All sudden death in infants, not only sudden infant death syndrome, should receive high priority in future research initiatives.

The hypothesis that apnea is the major cause of sudden death has not been substantiated, yet many clinical and research efforts are proceeding with acceptance of this hypothesis. These efforts should proceed with the realization that causality is unclear. In addition:

- The apnea hypothesis should be further tested.
- Causal hypotheses for SIDS other than apnea should receive more attention.

Research related to five substantive areas considered by the panel might include the following:

Apnea

- A prospective controlled study of the use of monitoring in specific populations that may be at risk, including infants with apnea of prematurity, apnea of infancy, and other conditions such as bronchopulmonary dysplasia and maternal exposure to drugs, is indicated.

  The following questions should be addressed:

  - Are there clinical markers for infants at high risk for ALTE and sudden death (including SIDS)?
  - Will monitoring reduce the incidence of mortality in these infants?
  - Will monitoring influence morbidity of these infants?
  - Are there adverse consequences of monitoring?
- Continued efforts to elucidate basic pathophysiology of apnea of prematurity and apnea of infancy are important.
- Identification of risk assessment methods and pharmacologic treatments and their use in conjunction with monitors should be pursued.

Monitoring: Technical

- New methods of sensing infant breathing need to be developed and evaluated. Particular attention needs to be paid to nonimpedance types of sensors that are suitable for home use, the simultaneous recording of several sensors and signal processing that make apnea detection more efficacious.
- The use of heart rate monitors needs further investigation. Studies must be designed to determine if heart rate monitors are adequate for detecting and alarming on life-threatening events.
- The use of pulse oximetry for infant apnea monitoring needs further investigation. Reliable, less expensive instrumentation appropriate for home use should be developed, and the usefulness of this measurement for hypoxemia detection needs to be determined. The use of hard copy recordings of this variable along with respiration and heart rate must also be evaluated.
- Infant monitors, not matter what type, need to be more reliable. Monitors with improved self-testing algorithms must be developed, and standards and methods of signal stimulation and testing must be established. Studies that determine the optimal means of quality assurance, trouble-shooting, and service (i.e., support) for home apnea monitors are needed.

Monitoring: Psychosocial

- Research to identify the psychosocial characteristics and apnea program operational procedures that help families adapt, cope with, and use home monitors effectively needs to be undertaken.
- Short- and long-term effects of monitoring on infants, parents, siblings, parent-child interactions, and families should be investigated.
- The hypothesis of a relationship between monitoring and child abuse needs further study.
- Studies to establish the rates, causes, and consequences of noncompliance and premature termination of monitoring should receive high priority.
- Research to identify factors related to and interventions promoting the ability of families to terminate monitoring would be of benefit.

Apnea Program: Health Services

- Identification of ways of assuring access to assessment, monitoring, and coordinated medical, technical, psychosocial, and community support services for infants at risk should be a priority of regional, state, and Federal authorities.
- Development and coordination of appropriate regional patterns of care, including the identification of the role of the referral center, community hospital, primary care physician, community agencies, and informal supports should be pursued further.
- The components, organizations, and relative value of community supports that are necessary to minimize family stress and promote effective monitoring should be better delineated.

Sudden Death, Including SIDS

- Comparative epidemiologic studies of apnea of infancy, ALTE, and sudden death should receive high priority.
- New and improved technologies or markers with predictive value for prospective identification of infants destined to develop ALTE (including apnea of infancy) and SIDS need to be identified.
- The possibility that tissue specimens can be utilized to identify subsets of the SIDS group and that a national SIDS tissue bank would be worthwhile should be evaluated.
- The possibility that methodologies such as intense psychosocial support and other interventions might be more effective than monitoring in mortality prevention needs further study.

Conclusion

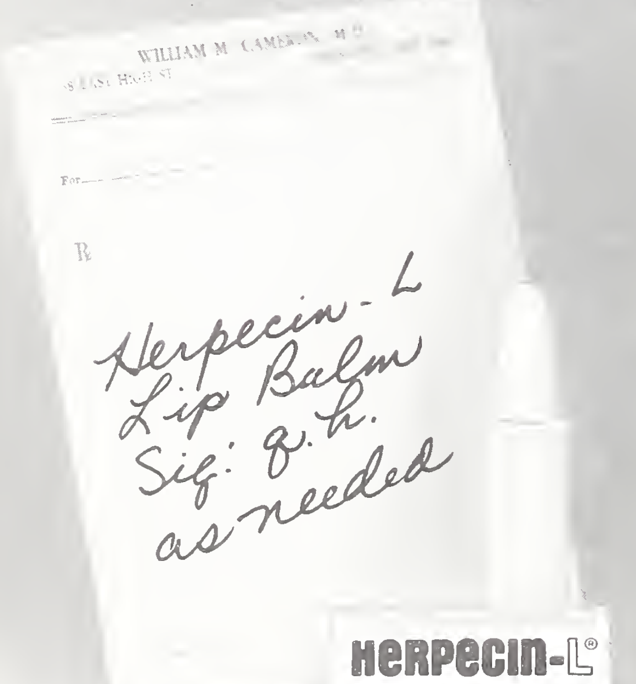
This statement summarizes a consensus process devoted to questions focusing on infantile apnea and home monitoring. The level of concern is high, the need for definition and knowledge helpful to the clinician is evident, and the overall fund of knowledge is inadequate.

The relation of neonatal and infant apnea is that of two apparently separate problems, each with an unclear relationship to mortality and morbidity in infancy. Presently available devices appear to be safe, but their efficacy needs additional study, and technology needs to be advanced. Beneficial and adverse effects of monitoring are evident but need further study. The need for adequate support systems is apparent. The effectiveness of home monitoring in reducing infant mortality and morbidity is not yet established. Additional studies need to be done. A recommendation to monitor selected high-risk infants is made. Routine monitoring or screening or normal term or preterm infants is not recommended. There are certain patients for whom evidence is inconclusive and decisions will have to be individualized. Recommendations for future research of a general and specific nature are made.

Members of the Consensus Development Panel were: George A. Little, MD, Panel Chairperson, Professor and Chairman, Department of Maternal and Child Health, Dartmouth-Hitchcock Medical Center, Hanover, New Hampshire; Roberta A. Ballard, MD, Director, Maternal and Child Health Services, Mount Zion Hospital and Medical Center, Adjunct Associate Professor of Pediatrics, University of California at San Francisco, San Francisco, CA; John G. Brooks, MD, Associate Professor of Pediatrics, University of Rochester School of Medicine and Denistry, Rochester, New York; Robert T. Brouillette, MD, Associate Professor of Pediatrics, Northwestern University Medical School, Associate Director, Sleep Laboratory, Attending Neonatologist, Children's Memorial Hospital, Chicago, Illinois; Larry Culpepper, MD, Associate Professor of Family Medicine, Brown University, The Memorial Hospital of Rhode Island, Pawtucket, Rhode Island; Herman B. Gray, Jr., MD, Medical Director, Apnea Identification Program, Wayne County SIDS Center, Children's Hospital of Michigan, Detroit, Michigan; Patricia King, JD, Associate Professor, Georgetown University Law Center, Washington, DC; Marvin O. Kolb, MD, FAAP, Department of Pediatrics, Fargo Clinic, Ltd., Fargo, North Dakota; Ann Neal, PhD, Vice President, Bon Secours Health System, Columbia, Maryland; Michael R. Neuman, MD, PhD, Associate Professor of Biomedical Engineering in Reproductive Biology, Case Western Reserve University, Cleveland, Ohio; Donald R. Peterson, MD, MPH, Professor Emeritus, University of Washington, Seattle, Washington; Stuart O. Schweitzer, PhD, Professor, University of California at Los Angeles School of Public Health, Los Angeles, California; Heather Weiss, EdD, Director, Harvard Family Research Project, Harvard University Graduate School of Education, Cambridge, Massachusetts.

Members of the Planning Committee were: Duane Alexander, MD, Planning Committee Chairperson, Director, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD; Heinz W. Berendes, MD, MHS, Director, Epidemiology and Biometry Research Program, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD; Charlotte Catz, MD, Chief, Pregnancy and Perinatology Branch, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD; Susan M. Clark, Social Science Analyst, Office of Medical Applications of Research, National Institutes of Health, Bethesda, MD; Marlene E. Haffner, MD, Director, Office of Health Affairs, Department of Health and Human Services, Food and Drug Administration, Silver Spring, MD; James G. Hill, Chief, Office of Planning and Evaluation, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD; Itzhak Jacoby, PhD, Acting Director, Office of Medical Applications of Research, National Institutes of Health, Bethesda, MD; Samuel Kessel, MD, Chief, Research and Training Branch, Division of Maternal and Child Health, Department of Health and Human Services, Rockville, MD; James Kiley, PhD, Health Scientist Administrator, Division of Lung Diseases, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD; George Little, MD, Consensus Panel Chairman, Professor and Chairman, Department of Maternal and Child Health, Dartmouth Medical School, Hanover, New Hampshire; Col. John R. Pierce, MD, Assistant Chief, Department of Pediatrics, Walter Reed Army Medical Hospital, Washington, DC; Jonelle C. Rowe, MD, Associate Professor, Department of Pediatrics, Division of Neonatology, University of Connecticut Health Center, Farmington, CT; Sumner J. Yaffe, MD, Director, Center for Research for Mothers and Children, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD.

Dx: recurrent herpes labialis



"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough."** DDS, MN

"HERPECIN-L® . . . a **conservative approach** with **low risk/high benefits."** MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) **. . . response** was **dramatic.** HERPECIN-L . . proven **far superior."** DDS, PA

"All patients claimed **shorter duration** . . . at **prodromal symptoms** . . . HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

Health Effects of Smokeless Tobacco

AMA COUNCIL ON SCIENTIFIC AFFAIRS

Tobacco in various forms has been used for centuries. Using snuff and chewing tobacco was popular in the United States during the 18th and 19th centuries, but current data on their use are limited. Pharmacologic and physiologic effects of snuff and chewing tobacco include the gamut of cardiovascular, endocrinologic, neurologic, and psychological effects that are associated with nicotine. A review of studies appearing in the scientific literature involving various populations and approaches indicates that the use of snuff or chewing tobacco is associated with a variety of serious adverse effects and especially with oral cancer. The studies suggest that snuff and chewing tobacco may also affect reproduction, longevity, the cardiovascular system, and oral health. One group estimated that the relative risk of oral cancer in longtime users of snuff varied from 1.8 to 48 times that of its occurrence in nonusers. But few of the studies have fully utilized accepted scientific and epidemiologic methods. The Council on Scientific Affairs concludes there is evidence demonstrating that the use of snuff or chewing tobacco is associated with adverse health effects such as oral cancer, urges the implementation of well-planned and long-term studies that will further define the risks of using snuff and chewing tobacco, and recommends that the restrictions applying to the advertising of cigarettes also be applied to the advertising of snuff and chewing tobacco.

Resolution 57, adopted at the 1984 Interim Meeting of the House of Delegates, requested that the American Medical Association (AMA) review the health effects of "smokeless tobacco" and recommend whether its advertising should be regulated in accordance with the same standards applied to smoking tobacco. This report, based on an extensive review of the biomedical literature, responds to Resolution 57. In the report, "smokeless tobacco" is defined as chewing tobacco and snuff.

Humans have used tobacco for about a thousand years.[1] Once introduced, its use seldom has been eliminated, even by legal or religious proscription.[2] A plant of the Western Hemisphere, tobacco was being traded and used for ceremonial and medicinal purposes by Indians of the West Indies when Columbus arrived; they sniffed finely cut tobacco and smoked it in pipes called "tobagos" or "tobacos." Tobacco was used as early as the 16th century in Mexico.

After the time of Columbus, explorers and traders introduced tobacco to Europe and then Asia, where it quickly found uses in social and commercial life. Linnaeus in 1753 named the genus of the tobacco plant *"Nicotiana tabacum,"* after the French statesman Nicot. In 1828, the most important known ingredient of tabacco was isolated and called "nicotine."

During the 17th and 18th centuries, sniffing finely cut tobacco ("snuff") and using ornate paraphernalia, such as ivory and jade snuff bottles, became prevalent

Members of the Council on Scientific Affairs are as follows: John R. Beljan, MD, Dayton, Ohio, Vice-Chairman; Stefano Bertozzi, Brookline, Mass, Medical Student Representative; George M. Bohigian, MD, St Louis; E. Harvey Estes, Jr, MD, Durham, NC; Ira R. Friedlander, MD, Chicago, Resident Representative; John H. Moxley III, MD, Los Angeles, Calif, Chairman; William C. Scott, MD, Tucson; Joseph H. Skom, MD, Chicago; James B. Snow, Jr, MD, Philadelphia; Richard H. Steinhilber, MD, Cleveland; Jack P. Strong, MD, New Orleans; Henry N. Wagner, Jr, MD, Baltimore; William R. Hendee, PhD, Secretary; William T. McGivney, PhD, Assistant Secretary; Theodore C. Doege, MD, MS, Primary Staff Author.

From the Council on Scientific Affairs, American Medical Association, Chicago.

Report B of the Council on Scientific Affairs, adopted by the House of Delegates of the American Medical Association at the Interim Meeting, Dec 8 through 11, 1985.

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all of the facts and circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and patterns of practice evolve. This report reflects the views of the scientific literature as of August 1985.

Reprint requests to Council on Scientific Affairs, American Medical Association, 535 N Dearborn St, Chicago, IL 60610 (William R. Hendee, PhD).

in England, and the use of snuff was reintroduced to the Americas by early colonists. By the 1800s the use of snuff, loose-leaf tobacco, and "plug" tobacco was popular in the United States.[2] The latter was made by inserting folded tobacco leaves into holes drilled into trees with sweet saps that would flavor the "plugs."

During the late 1800s, the chewing of tobacco decreased greatly, when chewing and spitting were excoriated by leaders in medicine and science such as Koch, Pasteur, and Lister, who associated the habit with germs and the transmission of communicable diseases.[2,3]

At present it is estimated that about 22 million people use smokeless tobacco.[3] A report of the US Surgeon General stated that in 1975, 2.5% of males used snuff and 4.9% chewed tobacco; among females, 1.3% used snuff and 0.6% chewed tobacco.[4] These data on prevalence of use were little changed from those of 1970. Between 1965 and 1983, the total production of snuff and chewing tobacco decreased 6%, from 169 million pounds to 159 million pounds; during the same period the per capita consumption of those products decreased 27%, from 0.88 lb to 0.64 lb.[5]

Recent studies investigated the prevalence of smokeless tobacco use among high school students in Colorado. Of 1,119 Denver students in grades 9 through 12 who completed questionnaires, 117 (10%) used smokeless tobacco; 113 were males and four were females.[3] Ninety-six persons used 12 brands, and three of the 96 also smoked cigarettes. Of 445 students from five rural towns,[6] 56 students (13%) used smokeless tobacco, ten (18%) of the 56 also smoked cigarettes. All users were males. In each of the Colorado studies almost all users were white. Glover et al[7] reported studies in four states and Canada indicating that 0% to 5% of adolescent and adult females use smokeless tobacco and that 7% to 15% of males use such products.

How Unsmoked Tobacco Is Used

In general, the makeup of chewing tobacco and snuff varies by nation.[3] Among the variable factors in processing tobacco and its products are the type of plant and leaf used; curing methods; the chemicals, substances, and flavorings that are added; production processes such as fermenting and adding moisture; and the abrasives found in the mixtures.[8]

In the United States the four main types of chewing tobacco are loose leaf, plug, twist, and fine cut.[9] Loose leaf, the most common, is sold in small packages and may be plain or flavored. Fine-cut tobacco also may be plain or flavored and resembles snuff. "Plug" is tobacco that has been pressed into cakes and sweetened by adding a substance such as maple sugar or molasses. "Twist" is made of twisted and folded leaves from which the stems are removed.

In using chewing tobacco, generally a portion is bitten off and chewed or held between the gum and the cheek.[9] An amount that is bitesize is said to be a "quid," and one that is the size of a golf ball is called a "chaw." The mixture of saliva and tobacco juice that accumulates must be spit out periodically because swallowing it causes gastrointestinal discomfort.

Snuff is made from dark, air-cured, and fire-cured leaves; the leaves are finely cut, and the snuff may be dry or moist and flavored, salted, or scented.[4,9] In "dipping," a small amount of snuff is placed between the lip and the gum or the gum and the cheek. In Asia, the tobacco is mixed with leaves of the betel vine, areca nuts, and lime; use of the mixture called "betel" or "pan," is widely prevalent, and the components are available from street vendors and in markets. In Russia, tobacco is mixed with ashes, cotton oil, and lime and called "nass."[1]

In the United States, chewing tobacco, plug, and snuff are sold in grocery, drug, newspaper, and tobacco stores and shops. Illinois, Ohio, and some other states have laws prohibiting the sale of tobacco products or cigarettes to persons younger than 18 years.

Pharmacologic and Physiologic Effects of Tobacco and Nicotine

According to the 1979 report of the US Surgeon General, nicotine is the major component of tobacco that affects human organ systems and causes habituation. The nicotine content of tobacco leaves is 1% to 2%.[4] Nicotine is an alkaloid substance that has two nitrogen-containing rings and good lipid solubility.[10] The compound has complex and unpredictable actions that can stimulate or depress the ganglia of the autonomic nervous system.

While nicotine has no therapeutic applications,[11] it has many specific actions: small doses stimulate the central nervous system, but larger doses lead to respiratory paralysis through sympathomimetic effects; it increases the heart rate and blood pressure and affects the composition and coagulability of the blood; it stimulates the release of antidiuretic hormone and catecholamines from the adrenal gland; and it causes vomiting through its actions on the central and peripheral nervous systems and the vagus nerve. The fatal dose is about 60 mg of the base;[11] a cigarette made in the United States delivers 0.05 to 2.5 mg of nicotine to the smoker.[12] The increased salivation that accompanies the chewing of tobacco is considered to be due to a localized rather than to a systemic effect.

In humans, nicotine exerts specific stimulating actions that cause an alerting pattern seen on the electroencephalogram and a decrease in the tone of skeletal muscles. The compound seems to stimulate the memory and decrease aggression.[11] Nicotine appears to be concentrated in the breast milk, and thus it could affect nursing infants.[10] Withdrawal symptoms include nausea, headache, fatigue, increased irritability and hostility, and decreases in heart rate, blood pressure, and performance.

Blood nicotine levels rise rapidly in persons using snuff, compared with the levels resulting from smoking cigars without inhaling.[13] Using snuff over a period of hours results in plasma nicotine levels that are comparable with those in persons who smoke cigarettes and inhale.[14] A group of young men, including nonusers as well as users, experienced significant increases of heart rate and systolic and diastolic blood pressures when they used snuff.[15]

In addition to nicotine, tobacco contains nitrosonornicotine, a cyclic nitrosamine that is present at the level of 2 to 90 parts per billion.[16] Processing tobacco and its exposure to saliva may increase the concentration of nitrosonornicotine. Experimental studies with the mouse, rat, and hamster indicate that administering nitrosonornicotine by various routes can cause malignant tumors of the nasal cavity, esophagus, or lung.[17] Reviewing the evidence in detail, Grasso et al[17] concluded that nitrosonornicotine is a moderately active, site- and tissue-specific carcinogen and that there is no evidence that nitrosamines cause cancer in humans.

Chewing tobacco usually is heavily sweetened. Tests of several products showed its glucose or sucrose content to be 5% to 10%.[18] Snuff is less likely to be sweetened. The fluoride content of tobacco leaves is about 1 part per million. Snuff in India contains uranium, an emitter of alpha particles, and other ionizing radiation.[19]

Health Effects

Evidence concerning the effects on health of chewing tobacco and using snuff is not plentiful. Some major studies are summarized in the Table.

A key study is that of Winn et al,[20] who from hospital records or death certificates identified 255 women from North Carolina with oral or pharyngeal cancer and 502 women in a control group matched by ethnicity, age, county of residence, and method of identification. Ninety-one percent of the cases and 82% of the controls were interviewed; it is not clear whether the interviewees were aware of the subject being studied.

The North Carolina study showed that if white women used snuff but did not smoke tobacco, their risk of having oral or pharyngeal cancer was 4.2 times greater than if they used neither snuff nor cigarettes. The relative risk, 1.5, was lower for black women. If the women smoked tobacco, the relative risk of oral cancer from using snuff was only slightly increased. Women who used snuff for 50 years or longer were 48 times more likely to have cancer of the gum and buccal mucosa than were nonusers. Whether or not the women used alcohol or worked in a textile factory did not affect the risk of oral cancer. The authors attributed 87% of cancers of the gingiva and oral mucosa to the use of snuff and estimated that the annual incidence of oral and pharyngeal cancer was 26 cases per 100,000 users, and incidence that exceeded the rates of all but the six most common types of tumors in the United States.[20]

Jayant et al[21] and Jussawalla and Deshpande[22] compared 2,005 patients from India who had cancer of the oral cavity, pharynx, larynx, or esophagus with an equal number of controls matched by sex, age, and religion. They found that compared with nonusers, persons chewing tobacco were six times more likely to develop cancer of the oral cavity or of the hypopharynx and three times more likely to develop cancer of the oropharynx. Persons who smoked tobacco but did *not* chew it were about three times more likely to have cancer of the oral cavity and about four times more likely to develop cancer of the hypopharynx than were nonsmokers. Persons who both chewed and smoked tobacco had greatly increased risks of developing most of the types of cancer investigated. Jayant et al concluded that chewing tobacco is responsible for about 47% of all cancer cases involving the oral cavity and 40% of the cancers of the hypopharynx and that the risks related to chewing and to smoking tobacco are synergistic and reinforcing.

Another study from India considered the outcomes of pregnancies of 1,388 women in three social classes, who received care at a university hospital; 220 (16%) of the women chewed tobacco.[23] The quids weighed between 6 and 10 g, and their nicotine content was estimated to be 4%. The rate of stillbirths among women who did not chew tobacco was 17 per 1,000 births, and the rate of stillbirths for those who chewed tobacco was 50, about three times greater. The babies of women who chewed tobacco during their pregnancies weighed an average of 100 to 200 g less at birth than did the babies of nonchewers, and a greater proportion of the babies of chewers was delivered early compared with the proportion among nonchewers. The ususal predominance of male offspring was reversed among the women who chewed tobacco.

A prospective study in three provinces of India involved about 30,000 persons and, over a seven- to ten-year period, annual surveys of tobacco use and examinations for oral cancer, leukoplakia, and other lesions of the mouth.[24] No more than 11% of the study population was unavailable for follow-up. Patterns of using tobacco remained relatively constant. Based on 23,416 person-years of observation and the occurrence of nine cases of oral cancer, the age-adjusted incidence of oral cancer among persons chewing tobacco was 23 cases per 100,000 users. Oral cancer did not occur in persons who did not use tobacco in some way.

As part of the same study, Gupta et al[25] followed a cohort of 10,287 persons, finding that the age-adjusted death rate per 1,000 for women who chewed tobacco was 1.3 times that of women who did not chew and that the age-adjusted death rate for men who chewed tobacco was 1.4 times that of men who did not chew. The authors could not identify the conditions responsible for the higher death rates among those chewing tobacco.

An instructive case is that of a 58-year-old farmer who placed snuff in his left ear daily to weekly over a period of about 40 years, each time leaving it there for several hours.[26] He also dipped snuff. Because of burning and tingling of the ear of three months' duration, he underwent medical examination and was found to have a tumor measuring 3×4 cm, identified as a squamous cell carcinoma, at the upper part of the left ear. The examination also disclosed snuff particles in the left auditory canal and leukoplakia of the oral cavity.

An article in 1921 indicated that of 160 persons with cancer of the tongue, all but two used tobacco in some form; 41 of the 160 persons had leukoplakia.[27] The author stated there is "overwhelming" evidence that using tobacco in some form is the "chief factor" in the development of cancer of the tongue and that the presence of leukoplakia is an indication for stopping the use of tobacco.

Rosenfeld and Callaway[28] reported a series of 525

Table 1
STUDIES ON HEALTH EFFECTS OF SNUFF AND CHEWING TOBACCO

Study, Year	*Location*	*Result*	*Health Effect Noted*	*No. of Persons in Study*	*Type* of Study*	*Comments*
Snuff						
Rosenfeld,[28] 1963	Tennessee	Positive	Cancer of mouth	525	Retrospective, case series	90% of 159 women with oral cancer used snuff
Smith,[35] 1975	Tennessee	Negative	None	15,000 and 1,550	Concurrent and prospective	1,550 patients were followed up for ten years
Gritz,[14] 1981	California	Positive	Increased plasma nicotine	12	Concurrent, experimental	. . .
Winn,[20] 1981	N. Carolina	Positive	Oral cancer	757	Retrospective, case-control	Risk to some users was increased four to 48 times
McGuirt,[31] 1983	N. Carolina	Positive	Oral cancer	290	Retrospective, case series	. . .
Squires,[15] 1984	Texas	Positive	Increased heart rate and systolic and diastolic blood pressure	20	Concurrent, experimental	Subjects included users and nonusers
Chewing tobacco						
Vogler,[29] 1962	Georgia	Positive	Oral cancer	1,918	Retrospective, case series	Patients had various kinds of oral disease
Jayant,[21] 1977	India	Positive	Oral or hypopharyngeal cancer	4,010	Retrospective, case-control	. . .
Krishna,[23] 1978	India	Positive	Increase in stillbirths, decrease in birth weight, change in sex ratio	1,388	Retrospective, case series	. . .
Gupta,[24] 1980	India	Positive	Oral cancer	30,000	Prospective, field	. . .
Gupta,[25] 1984	India	Positive	Increase in age-adjusted death rates of males and females	10,287	Prospective, field	. . .
Undifferentiated use						
Brown,[30] 1965	Georgia	Positive	Oral cancer	394	Retrospective, case series	. . .
Greer,[3] 1983	Colorado	Positive	Oral or dental lesions	1,119	Concurrent, field	Whether nonusers were examined is not stated
Poulson,[6] 1984	Colorado	Positive	Lesions of oral tissues	445	Concurrent, field	Whether nonusers were examined is not stated

*Based on the classification of Doege TC, Gelfand HM: A model for epidemiologic research. JAMA 239:328-330, 1978.

patients in Tennessee with squamous cell cancer involving the oral cavity; 225 patients had cancer of the tongue or floor of the mouth and 300 had cancer involving the gingiva and buccal mucosa. Twelve (22%) of 55 women with cancer of the tongue or floor of the mouth had used snuff for many years; 143 (90%) of 159 women with gingival or buccal cancer were habitual users of snuff. Treatment of the gingival or buccal cancer usually was with surgery, and the authors emphasized the need to stop using snuff and the need for reexamination of the treated group at regular intervals. About half of the treated patients survived five years or longer without recurrence of the tumor.

A study of 1,918 patients seen at a Georgia clinic described the characteristics of those having or not having oral cancer.[29] The authors found that 36% of the men from rural areas who had cancer or other diseases of the mouth chewed tobacco and that 72% of the women from rural areas who had cancer dipped snuff. These proportions were significantly higher than those of comparison groups. The authors described the use of chewing tobacco and snuff as the "most striking" factor in the development of oral cancer.

In a study from the same clinic several years later,[30] of 394 patients with oral cancer, 21 (9%) of the men had a history of chewing tobacco and six (3%) had a history of using snuff; 72 (44%) of the women had a history of using snuff and four (2%) chewed tobacco. About one fourth of the patients survived at least ten years.

More recently, of 290 persons in a North Carolina hospital who had oral cancer, 57 persons (20%) used tobacco only in the form of snuff and did not use alcohol.[31] Most of the patients were older than 60 years, and three fourths of them had used snuff for more than 40 years. The male-to-female ratio was about 1:3, a marked contrast to the ratio of 2:1 seen among all patients in the hospital having head or neck cancer. About half of the patients had leukoplakia when they started treatment. Resection and radiation gave equally good results; about 25% of the patients were free of cancer five years after treatment.

Moore,[32] of the Roswell Park Institute, concluded that the progression through leukoplakia to malignant disease is slow, about ten to 40 years. While "there is no doubt that snuff and chewing tobacco are carcinogenic," he believed that using these substances probably is less hazardous than smoking cigarettes, especially for elderly persons. Several writers suggest chewing tobacco or using snuff to cure addiction to cigars or cigarettes.[13,33]

Smith and co-workers do not agree that a link exists between use of snuff and development of malignant disease. Over a ten-year period they studied more than 15,000 persons who used snuff; the average age of the users was 55 years, and 75% were women. All had cytological examinations of the oral mucosa; the results of most were negative.[34] Of 1,751 patients having clinical changes of the mucosa, 1,502 (86%) had *no* atypical cells and 237 (14%) had atypical cells. One hundred fifty-seven patients had biopsies, and in none was the diagnosis of malignant disease made. During the last half of the study, 128 of the 157 patients had annual biopsies and none had a dyskeratosis or malignant disease.[35] Of 400 users of snuff added to the study group, two persons had malignant disorders and both smoked and used alcohol heavily.

Use of chewing tobacco has been associated with effects on oral tissues other than cancer, such as discoloration of the teeth, halitosis, excessive wear on teeth due to abrasives in the tobacco, gingival recession, and periodontal destruction.[18,36,37] In studies of teenagers from urban and rural Colorado, 49% to 63% of those who used tobacco had periodontal deterioration or other dental or mucosal lesions.[3,6] An investigation of students having good oral hygiene showed no relationship between using smokeless tobacco and having gingival recession or mucosal pathology.[17] Tobacco is said to diminish the user's sense of taste and smell. There is no consensus about the relationship of using tobacco and the occurrence of dental caries.[3]

A study in India showed that providing information on the consequences of chewing tobacco, combined with discussions, films, and posters, led to reduced chewing in up to 16% of persons and to cessation of chewing in up to 5%.[1]

Comment

Evidence from the biomedical literature indicates that the use of snuff or chewing tobacco is associated with a variety of serious effects on health (Table), and the evidence is increasing. Yet there are few studies fully utilizing accepted epidemiologic methods and principles that clearly demonstrate the link.

Cancer of the tongue and use of tobacco in some form were associated as early as 1921, and more recently the case-control study of Winn et al showed that women who use snuff were 1.5 to 48 times more likely to develop oral or pharyngeal cancer than were those who were nonusers. But the latter study used information that was subject to interviewer bias and to error in recall, and the populations studied probably were not representative of those of the nation as a whole or of all persons who use snuff.[17] Furthermore, the exclusion of persons having oral or pharyngeal diseases from the control group could lead to overstating the effects of snuff, and the ascertainment of cancer cases would be unsatisfactory if cases were selected on the basis of death certificate diagnoses without reference to pathology data (A. R. Feinstein, MD, PhD), written communication, May 1985).

Studies of patients in Bombay indicated that the risk of oral cancer was six times higher in persons using tobacco than in those who did not use it and that chewing tobacco was responsible for 47% of all oral cancer. Yet differences between the tobacco grown in the United States and India and the differing components that make up the quid create uncertainty; for instance, lime, which in India is added to chewing tobacco, itself damages oral tissues[17] and is suspected to be a risk factor for cancer.[1,20] Also, there are differences between the populations of the two countries in nutritional status, cultural factors, and life-style.[17]

That chewing tobacco may have other serious effects is shown by a study from India indicating that tobacco affects the sex ratio, reduces birth weight, and increases the rate of stillbirths;[23] in that study, however, there was no adjustment for the mother's caloric intake, which by itself can affect the infant's birth weight (A. R. Feinstein, MD, PhD, written communication, May 1985). Another indicator of a serious effect is that the death rate among persons who chew tobacco apparently is substantially higher than among persons who do not chew it.[25] The case of a man who regularly applied snuff to one ear and eventually developed cancer of that ear leaves little doubt that in some persons using snuff can lead directly to cancer. Yet, some other substance, or a nonspecific reaction related to the insertion of a foreign body, also might have played a role.

Recently, the International Agency for Research on Cancer, an agency of the World Health Organization, considered the evidence regarding the types of snuff and chewing tobacco that are used in North America. The agency concluded the evidence is sufficient to indicate that the oral use of snuff is carcinogenic, and there is limited evidence indicating that chewing tobacco is carcinogenic.[38]

The study of Smith,[35] which involved one-time cytologic examinations of 15,000 snuff users, tends to indicate little risk. Only two patients in the large group developed oral cancer and none of the 128 persons who had annual biopsies developed cancer. But the duration of follow-up, if any, of the thousands who did not have biopsies is unclear.

Leukoplakia has been called "snuff dipper's keratosis"[39] and a precursor of oral malignant disease.[4] Yet it is important to understand that the white patches of mucous membranes called "leukoplakia" may be related to benign causes such as mycotic infection or lichen planus, as well as to carcinoma in situ or invasive cancer.[40-42] Studies from Scandinavia, South Africa, and the United States indicate that leukoplakia may appear where tobacco is in contact with mucosal surfaces and that irritation from heat may be involved.[3] According to del Regato's standard text, 10% to 30% of leukoplakias have "malignant potential."

There is some evidence that chewing tobacco and using snuff lead to gingival and periodontal disease and to discoloration of and unusual wear on the teeth. It would be important to gather more data about the occurrence of such effects, which not only could affect one's general level of health but also one's personal appearance.

While using alcohol and smoking cigarettes are believed to be major risk factors in the development of cancer of the oral cavity,[17,41,43] disagreement remains about the health effects of chewing tobacco and using snuff. For instance, a review in 1984[6] states that the answer to the question of smokeless tobacco and oral cancer "remains elusive," and Squier[44] quotes the 1979 report of the US Surgeon General as noting that "snuff and chewing tobacco have not been found to increase mortality . . . in the United States." Massey et al[16] believe that smokeless tobacco is a promoter of cancer, that the risks depend on the duration of exposure and the type of product used, and that the evidence already available is sufficient to justify stronger educational efforts about the possible consequences.

Oral cancer is believed to be one of the ten most common causes of cancer in the world, and it is an especially important problem in Asia. Nutritional deficiencies may be associated with oral and pharyngeal cancers. Lack of fruit, vegetables, and cereals in the diet, chronic iron and vitamin deficiencies, and deficiencies in vitamin A and protein have been implicated in the development of oral cancer.[1] These findings are the bases of a study now being conducted in the Soviet Union by the World Health Organization to determine if administration of vitamin A, carotene, and riboflavin can change the risk of developing oral cancer. A recent review summarized the steps involved in finding ways of preventing cancer and cited specific chemicals, methods, and populations that are receiving attention.[45]

It has been pointed out that the exact processes at the cellular and molecular levels that lead to cancer are unknown and that the specific known causes of cancer are few.[17] Cancer is believed to be the "result of numerous influences at the cellular level, many of which cannot be investigated easily in epidemiologic studies"[46] or in the laboratory or clinic. Hereditary factors may explain about 2% of cancers,[46] and behavioral factors such as smoking cigarettes may be prominent. Also remaining to be explained is why some persons who never use tobacco develop cancer of the oral cavity.[17] Some believe that immune surveillance systems and nutritional status are factors in the development of oral cancer.[17]

Further clinical and laboratory studies of snuff and chewing tobacco, their components, and their effects are needed. Prospective epidemiologic studies of persons who use snuff or chewing tobacco could provide needed data about the risks of developing oral cancer and other ill effects. Carefully designed case-control studies could help determine relative risks and provide clues for laboratory and clinical investigations. The epidemiologic studies might require decades to carry out, because with chewing tobacco and snuff the progression to oral cancer may be slower than with cigarettes.

Whether the prevalence of using snuff and chewing tobacco is increasing in the United States is uncertain. If the amounts used are increasing, this probably is related not only to an increasing population, but also to the habituating characteristics of nicotine and to its many effects on mind and body that have been known for centuries. Young persons, especially, tend to emulate role models such as parents, coaches, sports figures, and entertainers.[18] Perhaps such "modeling" behavior can be stimulated by popular, vigorous figures who chew tobacco or dip snuff, such as cowboys, musicians, baseball players, and actors. It is also possible that people who believe smoking cigarettes is hazardous chew tobacco or use snuff instead, which they believe has no ill effects.

Federally supported agencies such as the National Institutes of Health, the Centers for Disease Control, the National Science Foundation, and the National Academy of Sciences might be able to stimulate or support future studies of longevity and of long-term health effects in persons who chew tobacco or use snuff. These issues might be considered by the American Cancer Society, which could gather data in the same way that its members gathered important data linking lung cancer and cigarettes. One issue to investigate is whether chewing tobacco or using snuff is a significant risk factor in the development of cardiovascular disease.

Past AMA Actions

During the 1984 Annual Meeting, the House of Delegates adopted Resolution 122, calling for the AMA to declare the use of smokeless tobacco a hazard to health and requesting that the US Surgeon General require warnings on packages of smokeless tobacco similar to those on packages of cigarettes. Later, the Board of Trustees approved draft legislation that would require one of four warnings to appear on the packages in rotation, the authority for requiring such warnings being derived from the federal Cigarette Labeling and Advertising Act. The draft legislation also would require warning statements in advertisements and on outdoor billboards and prohibit the advertising of smokeless tobacco on radio and television.

Legislation (HR 2950) has been introduced in Congress to establish the requirement of warning labels on smokeless tobacco products under the jurisdiction of the Federal Trade Commission. In July 1985, the Health and Environment Subcommittee of the US House Energy and Commerce Committee held hearings on HR 2950, at which time AMA officials presented the AMA's policy on labeling and advertising of smokeless tobacco. Most recently, at its 1985 Interim Meeting, the AMA's House of Delegates adopted the position that the AMA should oppose the advertising and promotion of tobacco products and that legislation should be enacted to achieve this goal.[47]

Recommendations

The Council on Scientific Affairs recommends that the AMA:

1. Make known the increasing evidence that using snuff or chewing tobacco is associated with adverse health effects.

2. Urge the carrying out of well-planned studies by voluntary and federally funded organizations that could further define the risks associated with snuff and chewing tobacco, including the risk of developing cardiovascular disease.

3. Urge that the same requirements and restrictions applying to the advertising of cigarettes be applied to snuff and chewing tobacco.

If there continues to be advertising of snuff and chewing tobacco, the AMA should exert its influence to ensure that there is no exposure of young children and teenagers to the advertising. Also, the AMA urges that manufacturers take steps to diminish the appeal of snuff and chewing tobacco to young persons.

If advertising of snuff and chewing tobacco through the electronic media continues, equal time should be given by the media to public service announcements by national voluntary health organizations concerning the adverse health effects of snuff and chewing tobacco.

4. Through the Council on Scientific Affairs, periodically monitor and report on the growing evidence concerning the risks to health of using snuff and chewing tobacco.

Alvan R. Feinstein, MD, PhD, Dwight T. Janerich, DDS, and P. F. D. Van Peenen, MD, DrPH, critically reviewed the report and provided suggestions.

REFERENCES

1. McMichael AJ: Oral cancer in the third world: Time for preventive intervention? Int J Epidemiol 13:403-405, 1984.
2. Christen AG, Swanson BZ, Glover ED, et al: Smokeless tobacco: The folklore and social history of snuffing, sneezing, dipping and chewing. J Am Dent Assoc 105:821-829, 1982.
3. Greer RO Jr, Poulson TC: Oral tissue alterations associated with the use of smokeless tobacco by teenagers. Oral Surg 56:275-284, 1983.
4. Smoking and Health: A Report of the Surgeon General. Rockville, Md, Office on Smoking and Health, Public Health Service, pp 10, 39, 41, 1979.
5. Statistical Abstract of the United States 1985. US Dept of Commerce, p 766, 1985.
6. Poulson TC, Lindenmuth JE, Greer RO Jr: A comparison of the use of smokeless tobacco in rural and urban teenagers. CA 34:248-261, 1984.
7. Glover ED, Edwards SW, Christen AG, et al: Smokeless tobacco research: An interdisciplinary approach. Health Values: Achieving High Level Wellness 8:21-25, 1984.
8. Tobacco production, in The New Encyclopedia Britannica, ed 15. Chicago, Encyclopedia Britannica, pp 464-467, 1984.
9. Popescu CB: Tarnishing a spitting image: The health hazards of

smokeless tobacco, in ACHS News and Views. Summit, NJ, American Council on Science and Health, pp 3, 4, January-February 1985.

10. Luck W, Nau H: Nicotine and continine concentrations in serum and milk of nursing smokers. Br J Clin Pharmacol 18:9-15, 1984.
11. Gilman AG, Goodman LS, Gilman A: The Pharmacologic Basis of Therapeutics, ed 6. New York, Macmillan Publishing Co, pp 57, 213, 1980.
12. The Health Consequences of Smoking: Cardiovascular Disease: A Report of the Surgeon General. Rockville, Md, Office on Smoking and Health, Public Health Service, p 207, 1983.
13. Russell MAH, Jarvis MJ, Feyerabend C: A new age for snuff? Lancet 1:474-475, 1980.
14. Gritz ER, Baer-Weiss V, Benowitz NL, et al: Plasma nicotine and continine concentrations in habitual smokeless tobacco users. Clin Pharmacol Ther 30:201-209, 1981.
15. Squires WG Jr, Brandon TA, Zinkgraf S, et al: Hemodynamic effects of oral smokeless tobacco in dogs and young adults. Prev Med 13:195-206, 1984.
16. Massey JD Jr, Moore GF, Yonkers AJ: Smokeless tobacco: A risk factor in oral cancer. Ear Nose Throat J 63:453-458, 1984.
17. Grasso P, Kupper LL, Jennings BR, LaVia MF, Weathers DR, Furst A: Written Statements Submitted to the Massachusetts Department of Public Health Public Hearings, Boston, Feb 22, 1985.
18. Glover ED, Christen AG, Henderson AH: Just a pinch between the cheek and gum. J School Health 51:415-418, 1981.
19. Sharma PK, Lal N, Nagpaul KK: Study of trace amounts of U in snuff. Health Physics 48:811-812, 1985.
20. Winn DM, Blot WJ, Shy CM, et al: Snuff dipping and oral cancer among women in the southern United States. N Engl J Med 304:745-749, 1981.
21. Jayant K, Balakrishnan V, Sanghvi LD, et al: Quantification of the role of smoking and chewing tobacco in oral, pharyngeal and oesophageal cancers. Br J Cancer 35:232-234, 1977.
22. Jussawalla DJ, Deshpande VA: Evaluation of cancer risk in tobacco chewers and smokers: An epidemiologic assessment. Cancer 28:244-252, 1971.
23. Krishna K: Tobacco chewing in pregnancy. Br J Obstet Gynecol 85:726-728, 1978.
24. Gupta PC, Mehta FS, Daftary DK, et al: Incidence rates of oral cancer and natural history of oral precancerous lesions in a ten-year follow-up study of Indian villagers. Community Dent Oral Epidemiol 8:287-333, 1980.
25. Gupta PC, Bhonsle RB, Mehta FS, et al: Mortality experience in relation to tobacco chewing and smoking habits from a ten-year follow-up study in Ernakulam District, Kerala, Int J Epidemiol 13:184-187, 1984.
26. Root HD, Aust JB, Sullivan A Jr: Snuff and cancer of the ear: Report of a case. N Engl J Med 262:819-820, 1960.
27. Bloodgood JC: Cancer of the tongue: A preventable disease. JAMA 77:1381-1387, 1921.
28. Rosenfeld L, Callaway J: Snuff dipper's cancer. Am J Surg 106:840-844, 1963.
29. Vogler WR, Lloyd JW, Milmore BK: A retrospective study of etiological factors in cancer of the mouth, pharynx and larynx. Cancer 15:246-258, 1962.
30. Brown RL, Suh JM, Scarborough JE, et al: Snuff dippers' intraoral cancer: Clinical characteristics and response to therapy. Cancer 18:2-13, 1965.
31. McGuirt WF: Snuff dipper's carcinoma. Arch Otolaryngol 109:757-760, 1983.
32. Moore GE: Hazard of snuff. JAMA 223:336, 1973.
33. Pindborg JJ, Axelsen NH: New age for non-smoked tobacco. Lancet 1:775, 1980.
34. Smith JF, Mincer HA, Hopkins KP, et al: Snuff-dipper's lesion: A cytological and pathological study in a large population. Arch Otolaryngol 92:450-456, 1970.
35. Smith JF: Snuff-dipper's lesion: A ten-year follow-up. Arch Otolaryngol 101:276-277, 1975.
36. Christen AG: The case against smokeless tobacco: Five facts for the health professional to consider. J Am Dent Assoc 101:464-469, 1980.
37. Schroeder KL, Chen MS Jr: Smokeless tobacco and blood pressure. N Engl J Med 312:919, 1985.
38. Tobacco Chewing, Snuff Dipping and Some Nitroso Compounds, vol 37, in IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Lyon, France, International Agency for Research on Cancer, in press.
39. Blum A: 'Smokeless' tobacco. JAMA 244:192-193, 1980.
40. Kissane JA (ed): Anderson's Pathology, ed 8. St Louis, CV Mosby Co, p 1610, 1985.
41. Del Regato JA, Spjut HJ: Cancer: Diagnosis, Treatment and Prognosis, ed 5. St Louis, CV Mosby Co, p 258, 1977.
42. Silverman S Jr, Gorsky M, Lozada F: Oral leukoplakia and malignant transformation: A follow-up study of 257 patients. Cancer 53:563-568, 1984.
43. Schottenfeld D: Snuff dipper's cancer. N Engl J Med 304:778-779, 1981.
44. Squier CA: Smokeless tobacco and oral cancer: A cause for concern? CA 34:242-247, 1984.
45. Greenwald P: Epidemiology: A step forward in the scientific approach to preventing cancer through chemoprevention. Public Health Rep 99:259-264, 1984.
46. Higginson J, Muir CS: Environmental carcinogenesis: Misconceptions and limitations to cancer control. JNCI 63:1291-1298, 1979.
47. Media advertising for tobacco products, BOARD OF TRUSTEES REPORT. JAMA 255:1033, 1986.

Reflections on Medicine

The Ninety-nine Day Kaiser

ROBERT U. MASSEY, M.D.

A colleague and I were standing before the shelves in his well-stocked library; I reached for a volume on the life of Frederick III. My friend, a professor of philosophy in a German university said, "He was our ninety-nine day Kaiser—1888 was the year when we had three emperors, our 'Dreikaiserjahr.' "

"Had he lived," I said, "our century might have been different."

"Completely. There probably would have been no World War, no Hitler, no World War II."

Perhaps, but who can tell how much the life and politics of one head of state affect the long course of history; such matters are not easy to sort out; is the world today divided between East and West because an enlightened German emperor died and left the field to an impulsive, militant 29 year old, or because a pathologist missed a diagnosis, or because a surgeon was understandably cautious? The art and science of medicine were hardly up to treating malignant disease in 1887.

We play the game of "what if" anyway. The familiar story of Frederick III and his laryngeal cancer is a favorite instance of how disease and clinical judgment may have affected history. Crown Prince Frederick William was an intelligent, capable man, inclined toward 1848 liberalism, and beloved by the people of the new German Empire. His devoted wife, Princess Victoria, eldest daughter of Queen Victoria, shared his popularity; they were "Unser Fritz" and "Vicky" to the people of Berlin.[1]

Bismarck had managed, after 1871, to keep the peace and had served or piloted William I for 27 years. This partnership he knew must end soon; the monarch had entered his tenth decade. In January 1887, the Crown Prince had a bout of laryngitis, and the hoarseness hung on. Fourteen months later, the old Kaiser died at 92, and Prince Frederick William became Emperor Frederick III; 99 days later he was dead.

The medical events and the political and cultural conflicts during Frederick's year and a half of struggle with his cancer are too convoluted to recount here.

After an attempted removal and 13 applications of the incandescent wire cautery, the lesion involving the Crown Prince's left vocal cord had recurred and was growing larger. Six physicians agreed that he had cancer and that a thyrotomy should be performed with extirpation of the affected tissue. Ernst von Bergmann, professor of surgery at Berlin, was to operate without telling the Crown Prince either the diagnosis or the nature of the surgery until just before the procedure. Both Bismarck and the Princess Victoria objected; the Chancellor insisted that the best laryngologist in Europe be called into consultation. The recent wars with France and Austria inclined whomever made the decision to select an Englishman; Morrell Mackenzie, who was preeminent in laryngology, was invited to Berlin.

Mackenzie accepted, but insisted upon microscopic confirmation before proceeding with surgery. Using laryngeal forceps on two occasions, he obtained pieces of the tumor and submitted them to Rudolf Virchow whose diagnosis was *pachydermia verrucosa*. The eminent pathologist gave a favorable prognosis, cautiously based upon the two portions removed. Frederick and Victoria went to London for the Golden Jubilee, and Mackenzie continued treatments in his Harley Street office. The Prince improved, and Morrell Mackenzie became Sir Morrell.

In *Diseases of the Pharynx, Larynx, and Trachea*, published in 1880, Mackenzie had reported 20 cases of thyrotomy, or laryngeal fissure, for carcinoma of the larynx. Three cases were without follow-up; in 16 there was recurrence; in only one had the tumor not recurred after two years. Mackenzie concluded: "It will thus be seen that the results of thyrotomy are extremely unsatisfactory." It is doubtful that his enthusiasm for laryngectomy eight years later was any greater.

The Crown Prince's improvement was short lived and he required a tracheotomy on 9 January 1888; he succeeded his father, Kaiser William I, on 9 March, and reigned as Frederick III until his death on 15 June 1888. An autopsy, limited to the neck and thorax, revealed an ulcerating necrotic larynx; a nodule at the base of the epiglottis and a cervical lymph node contained squamous carcinoma cells.

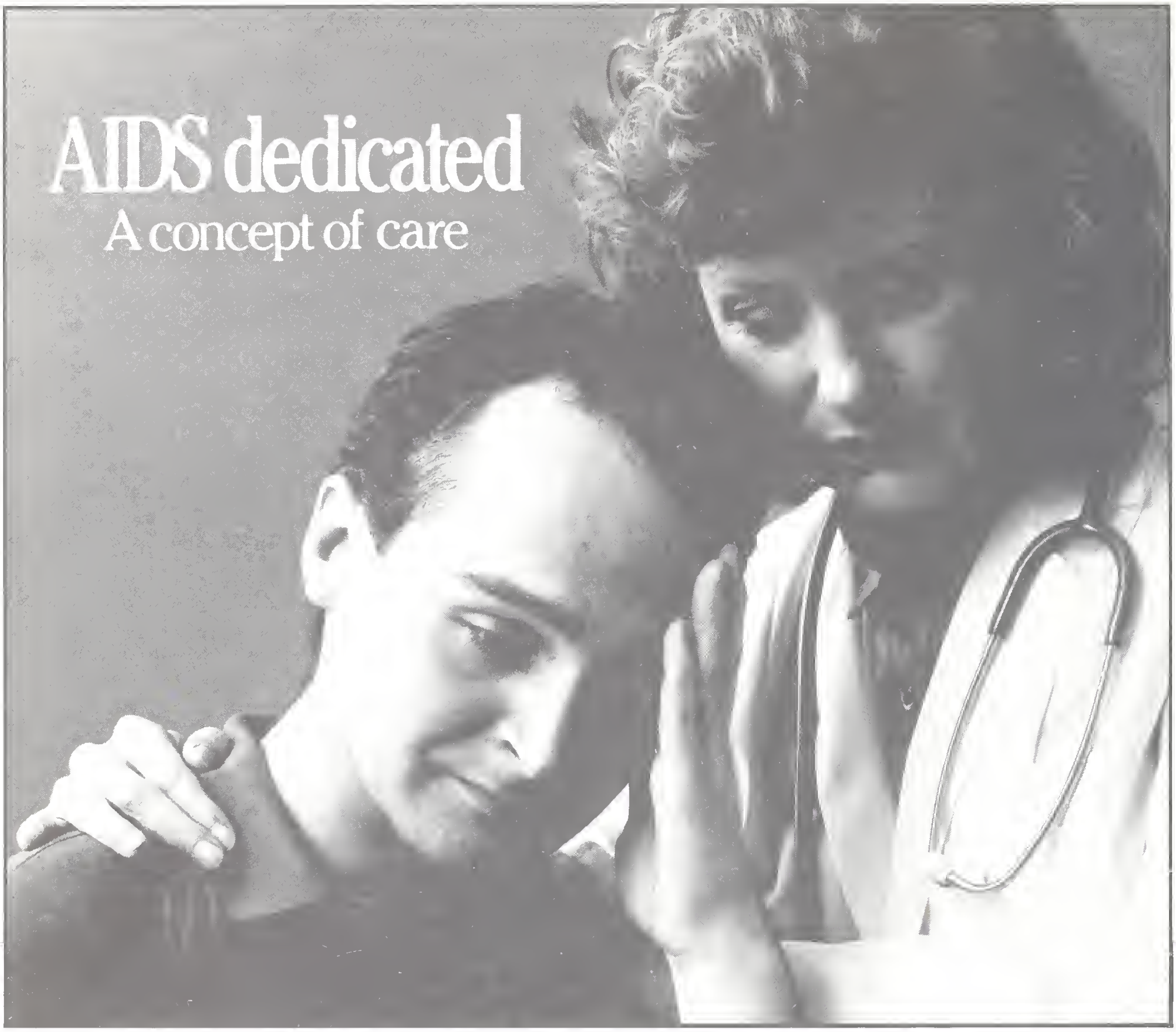
This human tragedy ended quickly, but the unseemly accusations which flew back and forth broke Morrell Mackenzie's heart; he defended himself in his book, *The Fatal Illness of Frederick the Noble*, but was berated by his English colleagues for betraying confidences, and was asked to resign from the Royal College of Physicians. He died at the age of 55 in 1892.

It used to be said that, had Frederick lived, the world would have been spared the tragedies of two world wars and the Holocaust. Ober[2] reminds us that Frederick would have been nearly 70 by the beginning of the 20th century, older than most of the Hohenzollerns, and that William II would have occupied the throne in due course; that delay might have made some difference, but it is unlikely that the forces straining to reshape Europe in the early years of this century could have been contained by the hands of this gentle prince. That kind of magic belongs to a different age.

REFERENCES

1. Lin JI: Death of a Kaiser, Landfall Press, Dayton, 1985.
2. Ober WB: The case of the Kaiser's cancer. Pathol Annual 1970, 5:207-216.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.



Photography by Ken Nahoum

AIDS is a complex disease, assaulting the psyche as well as the body. The Spellman Center for the Treatment of Persons With AIDS treats both. A comprehensive medical facility, Spellman is devoted to the care of those suffering from Acquired Immune Deficiency Syndrome.

Respect for individual dignity guides the Spellman program. Staffed by trained personnel dedicated to working with AIDS patients, the Center includes family and friends in the management of the patient's health crisis. Spellman also operates a 24-hour information hotline at 1-800-433-AIDS.

For criteria on admission and referrals, please contact the Medical Director, at 1-212-307-0735. Spellman is a division of St. Clare's Hospital and Health Center, designated the first AIDS treatment center by New York State.

The Spellman Center
for the Treatment of Persons With AIDS
St. Clare's Hospital and Health Center

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

An AZT Clinical Site

Medical experts,
providers of care

LAW, MEDICINE AND PUBLIC POLICY

Clarifying the Therapist's Duty to Warn Potential Victims: II

JOSEPH M. HEALEY, J.D.

In the Vermont case, discussed in my last two columns, the state Supreme Court held that a mental health professional who knows or, based upon the standards of the mental health profession, should know that his or her patient poses a serious risk of danger to an identifiable victim has a duty to exercise reasonable care to protect the potential victim from that danger. This case relies heavily upon the landmark California case of *Tarasoff v Regents of California*[1] and ignores the complaints of mental health professionals that such a duty is unrealistic, unfair, and harmful to the therapeutic goals of the mental health process. Several other states have resolved similar cases in a similar manner. This final column on the *Peck*[2] case will explore several implications of this trend in the law.

In the *Tarasoff* case, the California Supreme Court imposed upon a therapist the duty to employ the reasonable degree of skill, knowledge and care ordinarily possessed and exercised by therapists in the same or similar circumstances. When the therapist determines or, based upon the standard of reasonable care, should determine that the patient poses a serious risk of danger to a third party, then the therapist has a legal duty to take whatever steps are reasonably necessary to protect the foreseeable victim from that danger. The first objection offered involved the lack of sufficient control by the therapist over a patient seen on an outpatient basis. The Vermont Court provided little discussion or justification to support its conclusion that the relationship between a clinical therapist and patient is sufficient to create a duty to protect a potential victim of the patient's conduct. The second objection to the imposition of such a duty is based upon the difficulty of accurately predicting violent behavior. Only one paragraph was devoted to addressing the therapist's claim that such a duty should not be imposed because a therapist is no better able to predict violent behavior than anyone else. While acknowledging the difficulty involved in predicting whether a particular patient may be violent, the Vermont Court simply quoted the District Court of Nebraska[3] which concluded in an earlier decision that the standard of care requiring reasonably prudent action took into account the limitations faced by the therapist. As derived from *Tarasoff*, this standard requires not perfection, but only that the therapist exercise reasonable skill, knowledge and care according to professional practice. The third objection is based upon the claim that failure to observe confidentiality would violate the patient's legitimate rights and expectations and would undermine the trust necessary to pursue the therapeutic goals of the relationship. The therapist had acknowledged that the duty to maintain confidentiality was not absolute, but claimed that exceptions to the duty should be created by the legislature as had happened in Vermont in areas such as reporting of child or elderly abuse and disclosure of gunshot wounds. The Vermont Court rejected this claim arguing that a mental patient's threat of serious harm to an identified victim is an appropriate circumstance under which the privilege of confidentiality may be waived. Though therapists have a duty to reveal only as much as is necessary to prevent the threatened danger, they are required to take such steps to protect potential victims of violence.

The *Peck* case reinforces the need for mental health practitioners to conform to appropriate professional standards in the evaluation of patients' claims of intent to harm others. The duty of confidentiality in such cases is outweighed by the duty to warn innocent third parties. Though many physicians object to the imposition of such a duty, the clear trend in the law appears to affirm and to require such disclosures.

REFERENCES

1. Tarasoff v Regents of the University of California 1976, 17 Cal.3 425.
2. Peck v The Counseling Service of Addison County 1985, 499 A.2d 422.
3. Lipari v Sears, Roebuck & Co. 1980, 497 F.Supp. 185.

JOSEPH M. HEALEY, J.D., Associate Professor, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

“SELLING PRACTICES IS OUR ONLY BUSINESS”

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We guide you through the entire sales process from initial meeting to closing. Serving CT, NJ, NY, & MA.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010
(617) 232-1075
(212) 686-7902 (203) 869-3666

ANNUAL CME ASSEMBLY
presented by the
MEDICAL SOCIETY OF THE
STATE OF NEW YORK
CLINICAL DILEMMAS & CONTROVERSIES
MARCH 13-15, 1987
THE NEW YORK HILTON, NEW YORK CITY

■

HIGHLIGHTS...

20 CME Sessions; Panel Discussions; 70 Technical Exhibits; two Receptions; President's Dinner Dance.

Registration: There is no fee for members of the Connecticut State Medical Society, residents, medical students, or medical assistants. Non-member physicians - $50.; Allied Professions $10. We are accredited by the Accreditation Council for CME.

■

For a copy of the preliminary program, contact:
MSSNY, 420 Lakeville Road, P.O. Box 5404, Lake Success, N.Y. 11042.
Attn: Division of Meeting Services
(516) 488-6100

LYME DISEASE TESTING
at
Middlesex Memorial Hospital

- **State Approved Method**
- **Fast Turnaround Time**

PLEASE CALL (203) 344-6160
FOR INFORMATION AND MAILERS

mmh

Middlesex Memorial Hospital
28 Crescent Street
Middletown, Ct 06457

FOSTER PARENTS NEEDED

The Department of Children and Youth Services has instituted a special foster care rate of $1,000.00 per month to be paid to foster parents who will provide care for infants and children exposed to the AIDS virus. The Department is particularly interested in persons holding the M.D., R.N., L.P.N., or Certified Nurses Aid degree or certification. Call toll free (in confidence) 1-800-842-6346.

FROM THE EXECUTIVE DIRECTOR'S OFFICE

160 St. Ronan Street, New Haven, CT 06511 Telephone 865-0587

Timothy B. Norbeck, *Executive Director*
Josephine P. Lindquist, *Associate Executive Director*

Raymond T. Sullivan, Jr.
Assistant Executive Director
Public Affairs

Robert J. Brunell
Assistant Executive Director
Scientific Activities

Shelley A. Marcus
Director of
Government Relations

SUMMARY OF PROCEEDINGS
CSMS HOUSE OF DELEGATES—SEMI-ANNUAL MEETING
Ramada Inn, Meriden—November 19, 1986

Reports and Resolutions

The House of Delegates received reports from the President, the Council, the AMA delegation, the Executive Director, Connecticut Medical Political Action Committee (COMPAC) and from the Connecticut Medical Management, Inc. (CMMI). Resolutions and recommendations were also received from the Council, county associations and individual members.

Principal Actions Taken

(a) **Report of the President,** Joseph C. Czarsty, M.D., Oakville: The House VOTED to accept the report of the President, which included a report on tort reform, mandatory medicare assignment, medical courtesy card, COMPAC and the IPA/HMO. The full text of his report appears following this summary.

(b) **Report of the Council,** Guy W. Van Syckle, M.D., Danbury: The House VOTED to accept the report of the Chairman of the Council, which reviewed the activities of the Council since the last meeting of the House of Delegates. Minutes of the interim Council meetings have already been published in *Connecticut Medicine*. Special emphasis was placed on the CSMS IPA/HMO progress, the 1987 Budget, Committee on Physician Health, and the medical courtesy card. The actions taken on the Council's recommendations appear elsewhere in this summary.

(c) **Report of AMA Delegation,** Guy W. Van Syckle, M.D., Danbury: The House VOTED to accept the report of the AMA Delegation, which was prepared by Guy W. Van Syckle, M.D. The comprehensive report contained the principle actions taken at the 1986 Annual Meeting of the AMA House of Delegates. The full report is published at the conclusion of this summary.

(d) **Report of the Executive Director,** Mr. Timothy B. Norbeck, New Haven: The House VOTED to accept the report of the Executive Director which discussed the results of the current legislative elections, tort reform, expansion of membership benefits, meetings with the specialty sections, establishment of a young physician's section and a retired physicians' group, the medical courtesy card and the issue of mandatory assignment.

(e) **Connecticut Medical Political Action Committee (COMPAC),** Patrick Concannon, M.D., Chairman: The House VOTED to accept, as information, the report of the Chairman of COMPAC which mentioned that 1986, once again, was a record breaking year and that of almost 700 members, over 600 of these were sustaining members. He further reported that there were vital legislative issues facing physicians and that COMPAC spent all of its funds and also took out a loan to give minimal support to legislative candidates who would listen to a physician's position. Dr. Concannon urged that all physicians participate in COMPAC to preserve their medical practice and professional independence.

(f) **Report of Connecticut Medical Management, Inc. (CMMI),** James P. Orphanos, M.D., Greenwich, President; The House VOTED to accept, as information, the subject report, which gave an update on CMIC activities. It was reported that as of October 1, 1986, the third year of operation there are now 2125 policy holders from an initial enrollment of about 950 in 1984. It was further reported that: (a) Although reinsurance restrictions allowed only claims-made policies to be offered this year, 99% of existing policy holders renewed; (b) Even though the operations during the two years since its inception have been very favorable, there is no intention to become complacent; (c) The Claims, Risk Management, Finance, and Marketing Committees meet regularly to carry out their assigned duties and the physicians serving on these committees deserve the members thanks and appreciation.

(g) **Budget for 1987:** The House VOTED to approve the budget for 1987, as prepared and recommended by the Council, and that the dues remain at $275.

(h) **Committee on Third Party Payments:** The House VOTED to approve the recommendation of the Council that the Committee on Third Party Payments be discontinued; the reason being that it appeared to serve no useful purpose at this time.

(i) **IPA-HMO Funding:** The House VOTED to approve of the Society co-signing a line of credit, not to exceed $300,000. for the M.D. Health Plan and that the CSMS Fiscal Subcommittee's authorization will be required prior to the M.D. Health Plan drawing against the line of credit.

Amendment to the Bylaws

The House VOTED to approve the following amendment to the Bylaws:

Article XII-DUES

Section 1 Prescription (Add words in capitals)

Par 1. Annual dues for Active Members shall be prescribed for the ensuing fiscal year in an amount recommended by the Council and approved by the House of Delegates and shall be an equal per capita assessment upon each Active Member except that physicians, NEWLY IN PRACTICE IN THE STATE OF CONNECTICUT, who become Active Members during the SPRING WILL BE ASSESSED ONE-HALF OF THE ANNUAL DUES FOR THAT FISCAL YEAR AND PHYSICIANS, NEWLY IN PRACTICE IN THE STATE OF CONNECTICUT, WHO BECOME ACTIVE MEMBERS DURING the latter half of a fiscal year will be assessed one-quarter of the annual dues for that fiscal year.

Resolutions

The House VOTED to adopt the following resolutions:

Resolution on Budget

RESOLVED, That in preparation of future budgets, the Connecticut State Medical Society present a more detailed report in the House of Delegates handbook.

(a) the approved budgets for the two prior years,

(b) the actual expenditures as of August 30th in each of those years and projection for rest of year,

(c) the actual expenditures as of December 31st in the year available,

(d) all transfers of funds, with details, including expenditures from contingency funds and those projected for the balance of the year,

(e) the projected budget for the next year.

Resolution on Peer Review Protection

RESOLVED, That the American Medical Association reaffirm its position regarding peer review protection from the "Right of Discovery"; and be it further

RESOLVED, That the American Medical Association develop standards for federal and state legislation to support the concept of protection of the peer review process.

The House VOTED to refer the following resolutions to the Council for further study:

Resolution on Publication of Names of Physicians

RESOLVED, That the CSMS is opposed to the publication of lists of physicians' names by HMOs or other healthcare systems in newspapers, magazines or other advertising media in any fashion which intimates or implies that the listed physicians approve of, or support that particular company or its marketed plans and or concepts, and be it further

RESOLVED, That the CSMS shall notify all such companies of its position in this matter.

Resolution on Inactive Physician Licensure

RESOLVED, That the House of Delegates petition the Connecticut General Assembly to establish a category of Inactive Licensure.

AWARDS

CSMS Past Service Awards to Officers and County Councilors

OFFICERS

Norman A. Zlotsky, M.D., Rockville	
Secretary	1982-1986

COUNTY COUNCILORS

Litchfield County	
Kenneth R. Kaess, M.D., Winsted	
Associate Councilor	1981-1982
Councilor	1982-1985
Hartford County	
Annemarie Welch, M.D., New Britain	
Associate Councilor	1985-1986
Morris J. Seide, M.D., Hartford	
Associate Councilor	1984-1986
New Haven County	
Carl Scheer, M.D., Meriden	
Associate Councilor	1984-1986

Report of the President

JOSEPH C. CZARSTY, M.D.

Good afternoon fellow Delegates. It is hard to believe that six months have already elapsed since I addressed you as your newly installed president. I must confess that it has been both a busy and an exciting time. Busy is hardly the word for it. I have attended a meeting almost every single night since my inauguration, exciting for sure and a little frightening too. I'm afraid my message to you today will not be all good news.

Some of my activities on your behalf have involved me at the State Legislature. I was appointed to the Task Force to Study Tort Reform. This task force has met every two weeks since September. It consists of fifteen members, seven of whom are trial lawyers and most of the rest are also attorneys representing the insurance industry. We are fortunate to have Shelley Marcus from our CSMS staff as a member also. The trial attorneys have been more interested in trying to go back and undue what was accomplished last year than to move ahead with the charge to study further tort reform. The change in the political makeup of the legislature next year will undoubtedly make the whole problem more complex. The committee will have to have a report ready for the first of the year, and we will be meeting to the very end. I will keep you informed of events through Council reports or my presidents page.

I was also appointed to the Ad Hoc Committee to Study Mandatory Medicare assignment. This committee became a very political animal. There were members who had an honest interest in searching out the problem and there were members who were more interested in furthering their own political careers. We were visited by the CCAG on one occasion, and their display was eye-opening to say the least. They entered the meeting room at the capital singing hymns. By "they," I mean senior citizens who had been bussed to the capital by the CCAG (the initials stand for CONNECTICUT CITIZENS ACTION GROUP), put in a room and then in a revival meeting fashion whipped into a frenzy by the leaders and then led chanting into our meeting room to hoot, holler, insult and intimidate the legislators. Their leaders were very careful to see that they did not stay after they had made their presentation because they were afraid that they might hear the other side of the story.

Unfortunately, the last election pretty well gutted that committee, and it is my understanding that Representative Edith Prague, who is a member of the committee, has already submitted a bill mandating Medicare assignment tied to licensure similar to the one passed by our sister state to the north. This, despite the fact that two weeks before the election she wanted to recommend that the committee "temporarily" come out in favor of the courtesy card program so that it could be used against the republican members of the committee who were running against CCAG candidates. It is also surprising that she should enter a bill since the committee has not come to any consensus as of this time. This brings me to my next two topics for discussion, that is the courtesy card progam and COMPAC.

The courtesy card program was begun prior to and not because of the push for mandatory Medicare assignment, but now that that "Ogre" has raised its head, it is twice as important for all of us to get behind this very worthwhile program and urge all our colleagues to do the same. It may be our only salvation. I urge all of you who have not already sent in your acceptances to do so "stat." We must have 90% acceptance or we will be fighting an uphill battle. Remember, those people who will be issued the courtesy card will have demonstrated a need. You will still collect the deductible and the co-insurance which is mandated by law. I would urge those physicians who are participating medicare members to sign up even though they accept assignment all the time. It is a numbers game, and it is important that we have as many participants as possible. The larger counties are running their own programs by and large, and, Cam Staples, of the CSMS staff is coordinating the program in the smaller counties. The State Society has allocated a considerable sum of money to flesh out the program, and you will soon be receiving posters, signs, etc. for your offices. Please, once again, for the good of all . . . . PARTICIPATE.

COMPAC . . . . Well we raised more money this year than we ever raised before, but it still wasn't enough. COMPAC's board in consultation with our lobbyists entered a lot of races. We had a lot of friends who supported us and we had no choice but to show them our appreciation by supporting their re-election bids with contributions. Time was of the essence, and it was necessary to go out and borrow $15,000 to fulfill our commitment. I am now asking those of you who, for whatever reason, did not contribute to please reconsider and do so now, so that we may retire the note. I'm sure all of you supported your local candidates but that's not the same as COMPAC. COMPAC is recognized as organized medicines contributions. As far as the last election went, we won some, but we also lost some and next year will prove very interesting.

I have been talking for quite sometime now, and talking is something I've learned to do while serving as your president, but we do have a rather long agenda, so I'll only mention some of the other activities in which your State Society is involved. As you know, we are currently involved in a suit to stop the Hospital Cost Commission from gathering information which we feel is unnecessary and which could be used in a detrimental fashion against physicians. We are assisting a member physician in bringing a countersuit for what our attorneys tell us is a prime example of a frivolous and vexatious suit. It has not yet come to trial.

The IPA-HMO which has taken up a tremendous amount of time, but is a very exciting project will be discussed in detail in a short time by its very able leader Bill Whalen, with an assist from our project director who is truly an amazing person, Barry Scheuer. While I don't want to steal their thunder, I think is it important as your president to broach the subject of the Bridge Loan, and NO, we do not expect it to be of the MIANUS type. As you know, we have very carefully budgeted the monies collected to date, and have clung to our original time schedule as closely as possible, however there is a possibility that toward the end of January we may not yet have raised sufficient funds to break escrow. That means we will not yet have reached the sum of $4.5 million, in which case we will need a bridging loan to allow us to continue with the marketing etc. It is anticipated that the loan will be necessary for a period of 30 to 60 days. There are two caveats. One, is that the loan will not be taken out unless the Insurance Commissioner will assure us that the only hold up in our license is the capitalization. Secondly, Barry will also explore other sources of temporary capital.

The exact amount of the loan has not and cannot be determined at this time, but it will not exceed $500,000 dollars, and could be considerably less depending on when we can begin selling the stock. Of course it will be necessary for the State Society to co-sign the note and that is the reason I felt it necessary as your President to bring it to your attention.

In closing, let me thank you for your kind attention. If any of you wish more information on any of the topics I mentioned, I'll be available here today, or by phone in my office, to try to supply it. Once again thank you for allowing me to represent you.

Report of the Annual Meeting of the AMA House of Delegates

Chicago, June 15-19, 1986

The AMA House of Delegates met in Chicago, June 15-19, 1986. There were 391 delegates seated: 313 delegates representing state medical associations, 69 delegates representing national medical specialty societies, 9 Section and Service Delegates representing medical students, medical schools, resident physicians, hospital medical staffs, Army, Navy, Air Force, USPHS, and the Veterans Administration.

Three additional specialty societies were granted voting seats in the House at this meeting: American Academy of Child Psychiatry, American Pediatric Surgical Association, and Renal Physicians Association.

AMA President, Harrison L. Rogers, Jr., M.D. cited a number of ways in which medical practice has changed and in which the AMA has responded effectively to such changes. He urged physicians to: show society that they are primarly concerned that the patient receives the highest possible quality of care; demonstrate their advocacy for their patients and the medical profession by contributing both time and talent to the betterment of the community.

The 1987 AMA dues are to remain the same. The House was informed that any number of factors such as lower advertising revenues, higher production costs or reduced investment rates of return could further erode this narrow margin. The impact of net losses associated with AMACO were addressed. The House was assured that there will be no further capital infusion of AMA assets into AMACO present levels. Efforts are underway to enhance AMACO's capitalization and to improve its market position, thereby, ensuring its continuing viability.

In a major effort to strengthen both the active involvement and membership of young physicians in organized medicine, the House established a new Young Physicians' Section with a voting delegate. The AMA will also assist state medical associations in establishing similar sections. The AMA will encourage efforts to appoint qualified young physicians to leadership positions throughout organized medicine. A steering committee has been appointed and the goal is to have the new section operational at the 1986 Interim Meeting. The Young Physicians' Section is the fifth special section created within the last ten years.

The House adopted a comprehensive proposal to replace the existing federal Medicare program with a *new program* to finance health care for the elderly. This innovative program would be pre-funded and designed to be fiscally sound, provide comprehensive protection, including catastrophic coverage, have differing levels of beneficiary cost-sharing based on ability to pay, ensure fee choice among competing health plans providing specified adequate benefits, and assure access to high quality health care by the elderly.

The AMA plans wide dissemination of these new proposals to the executive and legislative branches of the federal government, other concerned groups, and the public.

The House of Delegates adopted a report which describes new and expanded AMA activities designed to enhance the competitive posture of its members, including: analyzing existing and emerging delivery and financing systems and serving as an information clearing house for physicians and medical societies, providing contract assistance services, providing statistical reports to physicians for any geographic area through the AMA Market Area Profile Service (MAPS), assisting physicians to secure suitable practice opportunities through the AMA Physicians' Placement Service, bringing physicians timely and useful information through teleconferencing with such topics as: practice development, socioeconomics, continuing medical education, risk management and policy and political efforts of the AMA.

The House also adopted a report dealing with alcohol advertising, counter-advertising, and depiction in the public media. The report called for additional research, discontinuation of alcohol advertising directed toward youth, elimination of television program content depicting irresponsible use of alcohol without showing its adverse consequences, addition of health education labels on all alcoholic beverage containers, encouragement of the alcohol beverage industry to accurately label all product containers as to ingredients, preservatives, and ethanol content.

There was an extended discussion on a number of items addressing the professional liability and insurance crisis.

A report of the Special Task Force on Professional Liability detailed the continuing activities of the Association including an update on federal legislation, consideration of alternatives to traditional tort reform, AMA activities with numerous coalitions, AMA response to allegations by the Association of Trial Lawyers of America, increased activities in risk management, peer review and discipline initiatives.

The House subsequently adopted a resolution calling on the AMA to study the desirability of establishing "liability courts" which would process liability cases.

The House adopted a resolution calling on the AMA to provide state medical associations with information concerning legal challenges to tort reforms in various states.

In other actions the AMA House of Delegates at its Annual Meeting in Chicago:

- Filed a Council on Ethical and Judicial Affairs report noting that it expects to complete for this year's Interim Meeting its review of conflict of interest guidelines for physicians.
- Filed a report requesting the Board of Trustees to present an annual report on Accreditation of Hospitals (JCAH).
- Filed a report providing an update on the development of hospital-medical staff joint ventures, pending release of an upcoming AMA monograph on the subject.
- Referred a proposal that the AMA develop a position and legislation regarding the physician's role in ambulatory care joint ventures.
- Recommended development of legislation that would require peer review organizations, fiscal intermediaries, insurance companies, and other third parties to accept liability and financial responsibility for injuries to patients resulting from improper review decisions.
- Said that the final report of the Health Policy Agenda for the American People would be completed late this year and distributed for consideration by state medical associations and other participating organizations.
- Adopted a Council on Medical Education report that supports the existing work by both the AMA and the Federation of State Medical Boards in their efforts to track bogus physicians.

FOR THE CONNECTICUT AMA DELEGATION: Guy W. Van Syckle, M.D., Frank K. Abbot, M.D., Edward A. Kamens, M.D., Stewart J. Petrie, M.D., Andrew J. Canzonetti, M.D., Jerome K. Freedman, M.D., Isadore H. Friedberg, M.D., W. Raymond James, M.D., Joseph C. Czarsty, M.D., James P. Orphanos, M.D.

IN MEMORIAM

ABRAMS, RAYMOND M., St. Louis University School of Medicine, 1943. Dr. Abrams was a radiologist in the New Haven County areas since 1975. He held the position of Chief, Department of Radiology, St. Mary's Hospital, Waterbury. Dr. Abrams was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association; died June 1986 at the age of 69.

AUSTIN, G. LAWRENCE, University of Pennsylvania, 1945. Dr. Austin was an obstetrician/gynecologist in the Hartford County area since 1945. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died September 27, 1986 at the age of 66.

BLANK, MIRIAM B., University of Aberdeen, Scotland, 1950. Dr. Blank was a general practitioner in the Fairfield County area since 1950. She was a senior attending physician in the family-practice section of Bridgeport Hospital and was a member of the courtesy staff at Park City Hospital, Bridgeport and St. Vincent's Medical Center, Bridgeport. Dr. Blank was a member of the Fairfield County Medical Association and the American Medical Association; died July 29, 1986 at the age of 60.

BRAUN, RUDOLF, University of Vienna, 1929. Dr. Braun was an internist in the Fairfield County area since 1939. He was on the staff of St. Vincent's Medical Center, Bridgeport, and the Jewish Home for the Elderly of Fairfield County. Dr. Braun was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died September 27, 1986 at the age of 84.

BUCKLEY, WILLARD E., Boston University School of Medicine, 1933. Dr. Buckley was a radiologist in the Middlesex County area since 1939. He was the first board-certified radiologist in Middlesex County and the first certified radiologist at Middlesex Hospital. Dr. Buckley was past president of the Middlesex County Medical Association and a member of the Connecticut State Medical Society and the American Medical Association; died August 1, 1986 at the age of 79.

FREEDMAN, MORRIS, Tufts Medical School, 1932. Dr. Freedman was geriatric specialist in the Fairfield County area since 1932. He was a staff member of Yale-New Haven Hospital and served as medical director at the New Haven Jewish Home for the Aged from 1955 to 1977. Dr. Freedman was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died September 13, 1986 at the age of 79.

GOFSTEIN, RALPH M., Yale University School of Medicine, 1951. Dr. Gofstein was pediatrician in the Fairfield County area since 1963. He was a consultant at Greenwich-Stamford and St. Joseph Hospitals and Public Health Director in Stamford. Dr. Gofstein was a member of the Fairfield County Medical Association and the Connecticut State Medical Society; died July 31, 1986 at the age of 63.

IGNACE, STEPHEN J., Georgetown Medical School, 1930. Dr. Ignace was a general practitioner in the Litchfield County area since 1932. He was a member of the courtesy medical and surgical staff of New Milford Hospital. Dr. Ignace was a member of the Litchfield County Medical Association and the Connecticut State Medical Society; died August 24, 1986 at the age of 83.

JOSEPH, LESTER G., Jefferson Medical College, 1939. Dr. Joseph was an internist and cardiologist in the New Haven County area since 1948. He was on the courtesy staff of the Hospital of St. Raphael. Dr. Joseph was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association; died August 5, 1986 at the age of 72.

KASPER, RICHARD F., Georgetown University Medical School, 1958. Dr. Kasper was a general practitioner in the Fairfield County area since 1959. He was a staff member of the St. Vincent's Medical Center, and was a medical director at the Park Avenue Restorative Health Care Center. Dr. Kasper was past secretary of the Bridgeport Medical Society and a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died August 9, 1986 at the age of 58.

OZENBERGER, JAMES M., University of Missouri School of Medicine, 1958. Dr. Ozenberger was an otolarygologist in the New Haven County area since 1962. He was a faculty member at Yale in the ENT department and was the founder and the first president of the American College of Cryosurgery. Dr. Ozenberger was a member of the New Haven County Medical Association and the Connecticut State Medical Society; died September 2, 1986 at the age of 55.

QUINTO, EUGENE L., University of Lausanne Medical School, 1959. Dr. Quinto was an ophthalmologist in the Hartford County areas since 1960. He had served on the Medical Dental Council at St. Francis Hospital and Medical Center. Dr. Quinto was a member of the Hartford County Medical Association and the Connecticut State Medical Society; died September 24, 1986 at the age of 56.

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

(If no name is listed, contact the Physician Placement Service for more details.)

EMERGENCY MEDICINE

Challenging full-time position available for a talented physician with experience in Emergency Medicine. Please send CV to Thomas W. Turbiak, M.D., FACEP, Chief, Emergency Medical Services, Bristol Hospital, Brewster Rd., Bristol, CT 06010.

Full-time position for E.R. physician at a greater Hartford area community hospital. Prefer an E.R. residency trained M.D. Internists/Family Practice M.D.s with E.R. experience will be considered. Competitive salary with a full benefit package. Send CV to Bradley Memorial Hospital, Personnel Dept., 81 Meriden Ave., Southington, CT 06489.

INSTITUTIONAL/INDUSTRIAL

HOSPICE PHYSICIAN. Position available to be part of the medical staff of the nation's first hospice. The Connecticut Hospice is a JCAH accredited medicare certified hospital with a 44-bed inpatient facility and a hospice based home care program of 50 patients. Excellent opportunity for a physician interested in palliative care. Connecticut license required. Board Certification preferred. Full-time position but part-time applicants may be considered. Please send C.V. to John M. Stober, Director of Human Resources, The Connecticut Hospice, Inc., 61 Burban Dr., Branford, CT 06405. E.O.E.

VICE PRESIDENT FOR MEDICAL AFFAIRS. Physician administrator needed to replace our retiring V.P. for Medical Affairs. The opportunity for a part-time private practice is available. Send CV to Elizabeth A. Lynch, Vice President for Human Resources, Bristol Hospital, Bristol, CT 06010.

Expanding multi-specialty Clinic in Central Connecticut looking for BC/BE internist. Excellent salary and fringe benefits. Send CV to CSMS, INST/GH.

INTERNAL MEDICINE

CARDIOLOGY. Expanding North Central Connecticut health care system (Acute Care Community Hospital, Free-standing Surgery Center, Nursing Home, Medical Education and Wellness Center) seeks BC/BE Cardiologist to establish community-based practice in a service area of 100,000. First year income guaranteed and office support systems for establishing practices provided. Partnership possibility with a Cardiologist as well as academic affiliation with University of Connecticut. Send C.V. to Alfred A. Lerz, President, Johnson Memorial Hospital, Chestnut Hill Route 190, Stafford Springs, CT 06076 or call (203) 684-4251, ext. 202.

FOR SALE. Newly founded internal medicine practice; coastal town, Connecticut. Excellent opportunity with great potential. Please send replies to CSMS, c/o IM/LL.

A dynamic private practice group of internists and pediatricians is seeking a qualified internist, BE/BC. The practice is associated with a Yale-affiliated hospital and provides housestaff ambulatory internal medicine teaching in office. An excellent career opportunity for those interested in a progressive, innovative private practice. Please submit a CV and inquiries to: Dr. C. Edward Leach, Pediatric & Medical Associates, 330 Orchard Street, New Haven, CT 06511.

MISCELLANEOUS

MEDICAL DIRECTOR. Connecticut's largest IPA-HMO, for-profit, with nearly 80,000 members is seeking its first full-time Medical Director. Excellent compensation and bonus program. Qualified candidate will have prior utilization review/quality assurance experience, proven managerial and supervisory responsibility, excellent verbal and written communications skills and prior experience in managed care systems. Concentration on interaction with physicians and hospitals in greater Bridgeport area but will interact with other HMO regions. No smokers. Send resume to: Personnel Department, Physicians Health Services, 2440 Reservoir Ave., Trumbull, CT 06611. E.O.E.

Physician to share medical office space in prime Westport location. For particulars please respond to CSMS, c/o MISC/GG.

OBSTETRICS/GYNECOLOGY

Central Connecticut. Excellent opportunity. Male/Female, B/C B/E—to join well-established solo practice. Office on Hospital grounds. Colposcopy, U/S, Laser available in a progressive University affiliated community hospital served by Yale resident. Send CV to CSMS, OB/SA.

ORTHOPEDIC SURGERY

Expanding North Central Connecticut health care system (Acute Care Community Hospital, Free-standing Surgery Center, Nursing Home, Medical Education and Wellness Center) seeks BC/BE Orthopedic Surgeons to establish community-based practice in a service area of 100,000. Exceptional first year income guaranteed and office support systems for establishing practices provided. Strong partnership possibilities as well as academic affiliation with University teaching hospitals. Send C.V. to Alfred A. Lerz, President, Johnson Memorial Hospital, Chestnut Hill Route 190, Stafford Springs, CT 06076 or call (203) 684-4251 ext. 204.

OTOLARYNGOLOGY

BC/BE otolaryngologist wanted to join 3-man group in central Connecticut. Please send curriculum vitae to Stanley Friedman, M.D., 219 West Main St., Meriden, CT 06450.

PEDIATRICS

Pediatrician to join practice in greater Hartford area. Salary with incentive leading to equal ownership. Start when available. Send reply to CSMS, c/o PED/JB.

Beginning January 1, 1987, a position will be available for part time hours in private pediatric practice located in a New Haven suburb, five miles from the Yale-New Haven Medical Center. The number of hours could be as few as four, or as many as 20 hours a week. Malpractice insurance will be provided. Earnings will be 40% of the individual's gross income. Also, anytime after January 1, 1987, a position will be available as a full time associate. If interested call 248-4846 any evening after 6:30 P.M.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

FAMILY PRACTICE

Nov. '86. Licensed in Connecticut. Age 60. Presently in practice. AB cert. MD, University of Heidelberg; Int., Mary Immaculate Hospital, Jamaica, NY; Res., St. Catherine's Hospital, Brooklyn, NY. Prefers group, associate, institutional or industrial type practice. Write CSMS, c/o FP/HS.

Oct. '86. Age 58. Presently in practice. FLEX. MD, Univ. of Bologna, Italy; Int. St. Boniface Hospital, Winnipeg, Manitoba, Canada; Res., Health Sciences Center, Manitoba, Canada. Prefers urgent care in a large-sized community. Write, Vito P. Girgenti, M.D., 9 Monk Rd., Warwick, RI 20889.

INTERNAL MEDICINE

July '87. Age 30. Presently in practice. Nat'l bds. AB cert. MD, Boston University School of Medicine; Int. and Res., St. Elizabeth's Hospital of Boston. Prefers group type practice. Write, Keith J. Lerner, M.D., 1680 Beaver Ridge Dr., Kettering, OH 45429.

Oct. '86. Age 28. Licensed in Connecticut. Presently in practice. AB elig. MD, University of Connecticut, Storrs, CT; Int. and Res., St. Mary's Hospital, Waterbury, CT. MPH, Yale University, New Haven, CT. Prefers group, institutional, industrial or prepaid HMO. Write, Malinda Midzenski, M.D., 25 Van Rose Dr., Hamden, CT 06517.

Jan. '87. Age 37. Nat'l bds. AB elig. MD, George Washington University School of Medicine, Washington, DC; Int. and Res., University of Alabama Hospitals. Prefers group or associate type practice in a medium to large-sized community. Write, Les Gavora, M.D., 7521 Murray Hill Rd., #638, Columbia, MO 21046.

July '87. Age 29. Licensed in Connecticut. FLEX. AB elig. MD, Autonomous Univ. of Guadalajara, Mexico; Int., SUNY Stony Brook School of Medicine; Res., Norwalk Hospital. Prefers solo or group type practice in a medium to large-sized community. Write Michael James, M.D., Apt. 4H, Bldg. 1, 40 Prospect Ave., Norwalk, CT 06850.

July '87. Age 30. Licensed in Connecticut. FLEX. AB elig. MD, Case Western Reserve University; Int., Cleveland Metropolitan General Hospital; Res., The Hospital of Saint Raphael, New Haven, CT. Prefers group or institutional type practice. Write to Kirana Hills, M.D., 34 Maplewood Terrace, Hamden, CT 06514.

July '87. Age 33. Licensed in Connecticut. Nat'l bds. AB elig. MD, University of Connecticut, Farmington, CT; Int. and Res., Yale affiliated Hospital. Prefers to join a group in southern Connecticut but will consider associate type practice. Write to CSMS, RH/IM.

GASTROENTEROLOGY. July '87. Age 30. Licensed in Connecticut. Nat'l bds. AB cert. MD, SUNY-Downstate Medical Center, Brooklyn, NY; Int. and Res., Hartford Hospital, Hartford, CT; Fellowship, Nassau County Medical Center, East Meadow, NY. Trained in all endoscopic procedures. Prefers group or associate type practice. Write, Jeffrey S. Gelwan, M.D., 200 Carman Ave., Apt. 13D, East Meadow, NY 11554.

PULMONARY. July '87. Age 29. AB cert., MD, Medical College of Baroda, India; Int., Res. and Fellowship, Bronx Lebanon Hospital, Bronx, NY. Prefers group or institutional type practice in a medium-sized community. Write to J.G. Patel, M.D., Apt. 2B, 111-15 66th Ave., Forest Hills, NY 11375.

ORTHOPEDIC SURGERY

July '87. Age 30. Nat'l bds. AB elig. MD, SUNY at Buffalo School of Medicine; Int., Millard Fillmore Hospital, Buffalo, NY; Res., Washington University School of Medicine, Seattle, WA. Prefers group, associate or institutional type practice in a large-sized community. Write, Robert P. Dudek, M.D., 4980 Potomac St., St. Louis, MO 63139.

Immediate available. Age 32. Licensed in Connecticut. Nat'l bds. AB elig. MD, S.U.N.Y. Upstate, NY; Int., Westchester County Medical Center, NY; Res., New York Medical College, NY. Prefers solo, group or associate type practice. Write, Neil S. Perlman, M.D., 42 Winchester Ave., Yonkers, NY 10710.

UROLOGY

Immediately available. No age given. MD and Int., Ains Sham University, Cairo, Egypt; Res., Albany Medical Center, Albany, NY. Prefers solo, group or associate type practice in a small community. Write, Edmond B. Grace, M.D., 28 Oakbrook Manor, Ravena, NY 12143.

July '87. Age 31. Nat'l bds. AB elig. MD, Downstate Medical School, NY; Int. and Res., Downstate—Kings County Medical Center, NY. Prefers group or associate type practice. Write, Steven A. Bernstein, M.D., 132-46 88th St., Ozone Park, NY 11417.

July '87. Age 30. Nat'l bds. AB elig. MD, Vanderbilt University, Nashville, TN; Int., Hartford Hospital, Hartford, CT; Res., Massachusetts General Hospital. Prefers solo, group, associate and institutional type practice in a large-sized community. Write, Wayne L. Poll, M.D., 15 Old Colony Lane #8, Arlington, MA 02174.

PAID CLASSIFIED ADVERTISING

CLASSIFIED ADVERTISING RATES

$50.00 for 25 words or less; 50 cents for each additional word.

$3.00 per insertion for confidential answers sent in care of CONNECTICUT MEDICINE. Payable in advance.

TORRINGTON, CONNECTICUT. Located nearly contiguous to Charlotte Hungerford Hospital, single-family, brick, manor-type residence suitable for conversion to professional/medical office use. 2752 sq. ft. with room for expansion and ample off-street parking. $275,000. Contact: Fahey Associates, Realtors, 199 Main St., Torrington, CT 06790. (203) 489-4185.

Connecticut Medicine

Vol. 51, No. 2 *The Journal of the Connecticut State Medical Society* February 1987
160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587

CSMS OFFICERS

Joseph C. Czarsty, M.D. Oakville
President
James P. Orphanos, M.D., Greenwich
President-Elect
Norman A. Zlotsky, M.D., Rockville
Vice-President
Annemarie Welch, M.D., New Britain
Secretary
Robert R. McDonnell, M.D., New Haven
Treasurer
Lawrence B. Ahrens, M.D., Newington
Speaker of the House of Delegates
Mehdi S. Eslami, M.D., Waterbury
Vice-Speaker of the House of Delegates

AMA DELEGATES

Edward A. Kamens, M.D., Fairfield
  Isadore H. Friedberg, M.D., Newington, *Alternate*
Guy W. Van Syckle, M.D., Danbury,
Chairman of the Council
  William A. Whalen, Jr., M.D., Willimantic, *Alternate*
Frank K. Abbot, M.D., Hartford
  Jerome K. Freedman, M.D., New Haven, *Alternate*
Stewart J. Petrie, M.D., Derby
  Joseph S. Sadowski, M.D., Hartford, *Alternate*

COUNCILORS

Robert P. Ragusa, M.D., Bridgeport
Fairfield County
Roger S. Beck, M.D., Wethersfield
Hartford County
Alfred J. Finn, Jr., M.D., Torrington
Litchfield County
Richard T. Sweet, M.D., Middletown
Middlesex County
Geroge A. Bonner, M.D., New Haven
New Haven County
Jerome Bobruff, M.D., New London
New London County
Gerald L. Schwartz, M.D., Rockville
Tolland County
Sherman L. Waldron, M.D., Thompson
Windham County

ASSOCIATE COUNCILORS

Turpin Rose, M.D., Danbury
Fairfield County
Howard J. Wetstone, M.D., Hartford
Hartford County
John J. O'Brien, M.D., Hartford
Hartford County
W. Peter Reyelt, Jr., M.D., Sharon
Litchfield County
Kenneth Robbins, M.D., Middletown
Middlesex County
Theodore Zanker, M.D., New Haven
New Haven County
Marvin Fox, M.D., Milford
New Haven County
Sultan Ahamed, M.D., Norwich
New London County
Arturo D.P. Villa, M.D., Somers
Tolland County
Kenneth R. Dardick, M.D., Storrs
Windham County

COUNCILOR AT LARGE

Joseph S. Sadowski, M.D., Hartford

Editor	Robert U. Massey, M.D.
Literary Editor	Sherwin B. Nuland, M.D.
Editor Emeritus	J. Alfred Fabro, M.D.
Assistant to the Editor	Vivian C. Feriola
Staff Assistant	Valerie A. Redman

Editorial Board

Hematology and Oncology	James E. Brown, M.D.
Cardiology and Internal Medicine	Martin Duke, M.D.
Psychiatry	Stephen Fleck, M.D.
Dermatology	Robert D. Greenberg, M.D.
Nephrology and Internal Medicine	William A. Handelman, M.D.
Internal Medicine	David P. Johnson, M.D.
General Surgery	Kirk K. Kazarian, M.D.
Pathology and Hemotology	Ramon N. Kranwinkel, M.D.
Pathology	John L. Meyer, M.D.
Public Health	Hans H. Neumann, M.D.
Diagnostic Radiology	M.B. Ozonoff, M.D.
Obstetrics and Gynecology	Stewart J. Petrie, M.D.
Neurosurgery	Melville P. Roberts, M.D.
Cardiology	Michael A. Rossi, M.D.
Internal Medicine and Rheumatology	Robert T. Schoen, M.D.

CSMS Staff

Executive Director	Timothy B. Norbeck
Associate Executive Director	Josephine P. Lindquist
Director of Public Affairs	Raymond T. Sullivan
Director of Government Relations	Shelley A. Marcus, Esq.
Director of Special Programs	Cameron C. Staples
Coordinator Medical Courtesy Card	Margaret K. Connelly
Membership Department	Dorothy M. Stratton
Placement Service	Valerie A. Redman
Management Information Systems	Deborah P. Titus
Accountant	Marc A. Sullivan
Secretary	Patricia A. King
Secretary	Denyse M. Malboeuf

Procaine Versus Magnesium in Cardioplegia Solution

A Prospective Study

ARTHUR P. VERCILLO, M.D., RAYMOND C. SQUIER, M.D.,
SURENDRA CHAWLA, M.D., STUART HOUSER, M.D., FAYYAZ HASHMI, M.D.
AND DONALD R. BECKER, M.D.

ABSTRACT—After using a cardioplegia solution containing 1 g/L of procaine and 3.0 mg/L of $MgSO_4$ (P Solution) for several years, a new solution was tested without procaine, but with 32.0 mg/L of $MgSO_4$ (M Solution). Both contained identical standard concentrations of sodium, potassium, chloride, acetate, gluconate, bicarbonate, insulin, dextrose, and $CaC1_2$. Prospectively, 12 consecutive patients were studied using the new M solution after which the next twelve consecutive patients were given the old P solution. The major difference between the two groups was that all P solution patients exhibited spontaneous defibrillation and resumption of regular cardiac rhythm when the aortic clamp was removed. In contrast, ten (83%) of M solution patients required direct current counter shocking for defibrillation, averaging 2.1 shocks per patient. There were no significant differences between the two groups in terms of age, sex, heart lesion, cardioplegia solution volume, clamp time, bypass time, myocardial and core temperatures, intraoperative potassium levels, or blood gas results.

It is therefore concluded that, since direct current countershocking is potentially harmful, the procaine cardioplegia solution (P) is to be preferred to the magnesium solution (M).

Introduction

Melrose first introduced elective cardiac arrest to ease technically difficult cardiac surgery in 1955.[1] The hyperkalemic cardioplegia solution first used gained early widespread acceptance. Approximately five years later when delayed myocardial necrosis was observed in some patients, the practice was all but abandoned.[2-4] Interest in cardioplegia was renewed in the 1970's as altered concentration of components were tested and the perfusate was cooled to induce hypothermia simultaneously.[2-6] Newer solutions have since come closer to resolving the conflict between the surgeon's desire for a motionless, bloodless field, and the myocardium's need for oxygen, substrate delivery, and waste removal.[2,3,6,7]

Cardioplegia helps protect the myocardium in three ways.[2,8] The first is through the conservation of energy reserves by attaining prompt diastolic arrest. Procaine, magnesium, and hyperkalemia can each induce prompt diastolic arrest, thereby greatly reducing useless anaerobic cardiac activity. The resulting reduction in energy store depletion helps to promote post-ischemic recovery.[2,3,7-11]

Once diastolic arrest is achieved, the ongoing metabolic and degenerative processes can be further slowed through the use of hypothermia.[2,7-9] This is achieved by cooling the cardioplegia solution to approximately 4°C.

The third myocardial protective mechanism is the prevention of harmful acidosis, ion redistribution, metabolite leakage, loss of cell volume control, disruption of cellular architecture, and several other occurrences.[2,9] This is achieved by avoiding extreme deviations from normal extracellular fluid concentrations.

Materials and Methods

Several cardioplegia solutions are currently on the market. For years the standard cardioplegia solution used at Saint Francis Hospital and Medical Center has included 1 g of procaine and 3 mEq $MgSO_4$/L (P solution). We recently tested a different solution containing no procaine and 32 mEq/L, of $MgSO_4$ (M solution). Both solutions contained identical standard concentrations of sodium, potassium, chloride, acetate, gluconate, bicarbonate, insulin, dextrose, and calcium. Twenty-four patients were randomly divided into two equal groups, one of which received M solution, the other P solution, and were prospectively studied for return of spontaneous defibrillation and resumption of normal cardiac rhythm. The two groups were also compared in terms of age, sex, heart lesion, volume of cardioplegia solution, aortic clamp time, cardiopulmonary bypass time, myocardial and core temperatures, intraoperative potassium, and blood gas levels, and follow-up immediately postoperatively and at 16 months.

ARTHUR P. VERCILLO, M.D., Chief Resident in Surgery, Saint Francis Hospital and Medical Center, Hartford, CT. RAYMOND C. SQUIER, M.D., Resident in Anesthesiology, Hartford Hospital, Hartford, CT. SURENDRA CHAWLA, M.D., Attending Cardiothoracic Surgeon, Saint Francis Hospital and Medical Center. STUART HOUSER, M.D., Attending Cardiothoracic Surgeon, Saint Francis Hospital and Medical Center. FAYYAZ HASHMI, M.D., Attending Cardiothoracic Surgeon, Saint Francis Hospital and Medical Center. DONALD R. BECKER, M.D., Director, Department of Surgery, Saint Francis Hospital and Medical Center; Professor of Surgery, University of Connecticut School of Medicine, Farmington, CT.

Reprint requests to: Department of Surgery, St. Francis Hospital & Medical Center, 114 Woodland St., Hartford, CT 06105 (Dr. Vercillo).

Results

The two groups were similar for age and sex. The range of cardiac lesions were similar for both groups with coronary artery bypass grafting the most common surgical procedure. There was no significant difference in cardioplegia solution volume used, clamp time, bypass time, core temperature, or myocardial temperature. The serum potassium level and arterial blood gas results coming off bypass were similar in the two groups. There was however, a striking difference between the P and the M group in terms of return of spontaneous cardiac activity. Every P patient had spontaneous return of normal cardiac activity, while only two of 12 M patients had spontaneous return. The other ten M patients (83%) required direct current counter shocking with an average of 2.1 shocks per patient. When subjected to 2 x 2 analysis, these results were found to be significant with a P value less than .001.

Patients were assessed during the immediate postoperative period and reassessed 16 months later. In the postoperative period there were two deaths, both in the P group, and both of whom were operated upon on an emergency basis. One of the two suffered a massive stroke, and the other developed respiratory complications and sepsis. No deaths occurred in any elective patients. Transient arrhythmias such as atrial fibrillation and occasional PVCs occurred in both groups. No patient in either group suffered a postoperative myocardial infarction as evidenced by EKG or enzyme changes, or congestive heart failure.

At 16 months patients in both groups were still doing well. One P patient had a borderline stress test. One patient in each group developed atrial fibrillation. None had evidence of myocardial infarction or congestive heart failure.

Discussion

We have reviewed several studies comparing various cardioplegia components, but not quite like ours where the solutions were alike in all respects except for magnesium and procaine concentrations.[5,6,12-16] Chiarvarelli compared a solution containing both procaine and magnesium to a solution containing neither. He concluded that the solution containing both offered a wider margin of safety and postulated it was due to an effect upon coronary vasoactivity in addition to prompt diastolic arrest.[17] Other authors such as Hearse and Bixler have compared solutions with different procaine and magnesium concentrations in addition to calcium and other component differences making it difficult to determine exactly which component was responsible for a specific effect.[6,12] From our study we can say that a procaine based solution eliminates the need for counter current shocking frequently required with a magnesium based solution. It is not known, however, whether this result is due to the presence of procaine or the lack of magnesium, though the former is suspected.

Multiple studies have confirmed the potentially damaging effects of direct current counter shocks upon the heart.[18,21] This is true especially when the paddles are placed directly upon the heart as during open heart surgery. The mechanism of injury is both thermal and electric, leading to nerve membrane changes, neurotransmitter release, myofibril rearrangement, and even cell death. These patients are prone to later arrhythmias depending upon the extent of cardiac damage, which in turn depends upon voltage delivered, number of shocks, and paddle surface area. A cardioplegia eliminating the need for counter shocking is, therefore, advantageous to the patient.

Conclusions

A cardioplegia solution containing 1/L procaine and 3 mEq/L magnesium more often promotes spontaneous defibrillation than a similar solution containing no procaine and 32 mEq/L magnesium. Since electric counter current shocking is potentially harmful, the procaine containing solution is to be preferred to the solution containing magnesium alone.

REFERENCES

1. Melrose DG, Dreyer B, Bentall HH and Baker JBE: Elective cardiac arrest. Lancet 1955, 2:21-23.
2. Hearse DJ: Cardioplegia: the protection of the myocardium during open heart surgery: a review. J Physiol 1980, 76:751-768.
3. Gay WA Jr and Ebert PA: Functional, metabolic and morphologic effects of potassium-induced cardioplegia. Surgery 1973, 74:284-290.
4. Kirsch M, Rodewald G and Kalmer P: Induced ischemic arrest; clinical experience with cardioplegia in open-heart surgery. J Thorac Cardiovasc Surg 1972, 63:121-130.
5. Robinson LA, Braimbridge MV and Hearse DJ: Comparison of the protective properties of four clinical crystalloid cardioplegic solutions in the rat heart. Ann Thor Surg 1984, 3B:268-274.
6. Bixler TJ, Gardner TJ, Flaherty JT, Goldman RA and Gott VL: Effects of procaine-induced cardioplegia on myocardial ischemia, myocardial edema and post-arrest ventricular function. J Thorac Cardiovasc Surg 1978, 75:886-893.
7. Hearse DJ, Stewart DA and Chain EB: Recovery from cardiac bypass and elective cardiac arrest. Circulation 1974, 35:448-457.
8. Rosenfeldt FL, Hearse DJ, Cankovic-Darracott S and Braimbridge MV: The additive protective effects of hypothermia and chemical cardioplegia during ischemic cardiac arrest in the dog. J Thorac Cardiovasc Surg 1980, 79:29-38.
9. Lucas SK, Elmer EB, Flaherty JT, Prodomos CC, Bulkley BH, Gott VL and Gardner TJ: Effect of multiple-dose potassium cardioplegia on myocardial ischemia, return of ventricular function and ultrastructural preservation. J Thorac Cardiovasc Surg 1980, 80:102-110.
10. Levitsky S and Feinberg H: Biochemical changes of ischemia. Ann Thorac Surg 1975, 20:21-29.
11. Tyers GFO, Hughes HC Jr, Todd GJ, Williams DR, Andrews EJ, Prophet GA and Waldhausen JA: Protection from ischemic cardiac arrest by coronary perfusion with cold ringers lactate solution. J Thorac Cardio Surg 1974, 67:411-418.
12. Hearse DJ, Steward DA and Braimbridge MV: Myocardial protection during ischemic cardiac arrest. J Thorac Cardio Surg 1978, 75:877-885.
13. Engleman RM, Auvil J, O'Donoghue MJ and Levitsky S: The significance of multidose cardioplegia and hypothermia and myocardial preservation during ischemic arrest. J Thorac Cardiovasc Surg 1978, 75:555-563.

14. DeLeiris J and Opie LH: Effect of substrates and of coronary artery ligation on mechanical performance and on release of lactate dehydrogenase and creatine phosphakinase in isolated working rat hearts. Cardiovasc Res 1978, 12:585-596.

15. Jynge P, Hearse DJ, DeLeiris J, Feuvray D and Braimbridge MV: Protection of the ischemic myocardium. J Thorac Cardiovasc Surg 76:2-15.

16. Mori F and Mori H: Effects of Coenzyme Q_{10} added to a potassium cardioplegic solution for myocardial protection during ischemic cardiac arrest. Ann Thorac Surg 1985, 39:30-36.

17. Chiavarelli M, Chiavarelli R, Carpi A and Marino B: Interactions between pharmacological cardioplegia and hypothermia for intraoperative myocardial protection. Ann Thorac Surg 1985, 39:218-222.

18. Doherty PW, McLaughlin PR, Billingham M, Kernoff R, Goris ML and Harrison DC: Cardiac damage produce by direct current countershock applied to the heart. Am J Cardiol 1979, 43:225-232.

Breast Carcinoma Metastatic to the Palatine Tonsils

K.J. LEE, M.D., DAVID S. FISCHER, M.D. AND ANTHONY P. FAPPIANO, M.D.

ABSTRACT—The most common malignancy among American women, breast carcinoma, accounts for the largest number of cancer deaths in these women between 15 and 75 years of age.[1] Forty-seven per cent of newly diagnosed breast carcinoma have metastasized at the time of diagnosis,[2] commonly to the regional lymph nodes, lung, pleura, bone, and intracranial sites. However, breast carcinoma metastatic to the tonsils is extremely uncommon, with only six documented cases in world literature. Presented here is the first case report in the English literature of metastatic tonsillar adenocarcinoma from the breast. After the metastatic tonsillar lesion was widely excised using the carbon dioxide laser, the patient did well for eighteen months and then succumbed to pulmonary metastasis. Careful analysis of the histopathology will be presented.

While breast carcinoma metastatizes frequently to the regional lymph nodes, lung, pleura, liver, bone, and intracranial sites, it rarely metastasizes to head and neck areas. However, due to its prevalence, breast cancer remains a significant source of head and neck metastases. Breast carcinoma is the most common neoplasm to metastasize to the mandible, maxilla, and gingiva[3,4] and the second most common malignancy to spread to the nose and paranasal sinuses.[5,6] According to Batsakis,[3] 50% of intraocular metastases are secondary to breast carcinoma. Moreover, breast carcinoma has been known to metastasize to the temporal bone[7] and the skin of the head and neck. Incidentally, breast carcinoma does not commonly present with cervical adenopathy, as opposed to the lungs, pancreas, stomach, kidney, colon, and ovary.[8]

With only six reported cases of breast carcinoma metastatic to the tonsils,[9-14] this is the first to be reported in English literature.

Case Report

The patient is a 67 year old female who noted a right breast lump in 1974. On biopsy, the mass was identified as an infiltrating ductal adenocarcinoma. (Figure 1) The patient subsequently underwent a rightsided modified radical mastectomy in April 1974. The surgical specimen from the mastectomy revealed an upper outer quadrant neoplasm which measured 1.7 cm in diameter. None of the 21 nodes demonstrated metastatic tumor. Metastatic work-up was negative, and the post-operative course was uneventful. The patient was discharged and did well until 1977 when she developed an asymptomatic right upper lobe solitary pulmonary nodule, noted on a routine follow-up chest x-ray. There was no evidence of other metastases at that time. Wedge resection of the pulmonary nodule revealed adenocarcinoma, consistent with the breast primary on pathologic examination. (Figure 2) The patient was treated with cyclophosphamide, methotrexate, and 5-fluorouracil from August 1977 until August 1979 with negligible side

---

K.J. LEE, M.D., Chief, Section of Otolaryngology, Hospital of St. Raphael; Director, Laser Surgery Center; Director, Ear Research and Educational Center, New Haven, CT. DAVID S. FISCHER, M.D., Attending, Section of Oncology and Hematology, Hospital of St. Raphael; and Yale-New Haven Hospital, New Haven, CT. ANTHONY P. FAPPIANO, M.D., Attending, Department of Pathology, Hospital of St. Raphael, New Haven, CT.

Reprint requests to: 98 York St., New Haven, CT 06511 (Dr. Lee).

effects. In August 1979, the cyclophosphamide was discontinued because of the risk of second malignancy and she was continued on chemotherapy with methotrexate and 5-fluorouracil. The patient did well on this regimen until February 1982 when she complained of a persistent sore throat which did not respond to antibiotic therapy. The patient was referred to an otolaryngologist who discovered a firm 1.5 cm x 1.5 cm lesion on the inferior aspect of the right tonsillar fossa, which on biopsy proved to be metastatic adenocarcinoma from the breast. (Figure 3) The patient was treated with 6600 rads of radiation over the course of seven weeks, followed regularly by an oncologist, otolaryngologist, and radiation therapist.

In August 1983, the patient reported an upper respiratory tract infection with a persistent sore throat and mild right side otalgia present for six weeks. Physical examination revealed fullness of the right tonsillar fossa with an ulceration of the superior pole of the anterior pillar. No cervical adenopathy was palpated. After antibiotic therapy failed, a biopsy proved this lesion to be recurrent adenocarcinoma, consistent with the breast primary. Wide excision was performed with the CO_2 laser at 30 watts. In light of the persistent disease, the chemotherapeutic regimen was changed to mitomycin and vinblastine in November 1983.

The patient did well for eighteen months and subsequently succumbed to pulmonary metastasis.

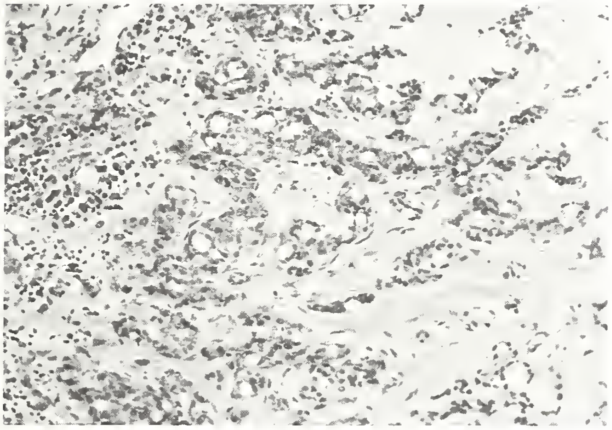


Figure 1

Original breast tumor (1974): Invasive sclerosing adenocarcinoma with neoplastic cells arranged in cords and single cell columns separated by densely collagenized fibrous tissue. Note mononuclear cell infiltrate composed predominantly of mature lymphocytes (150x).

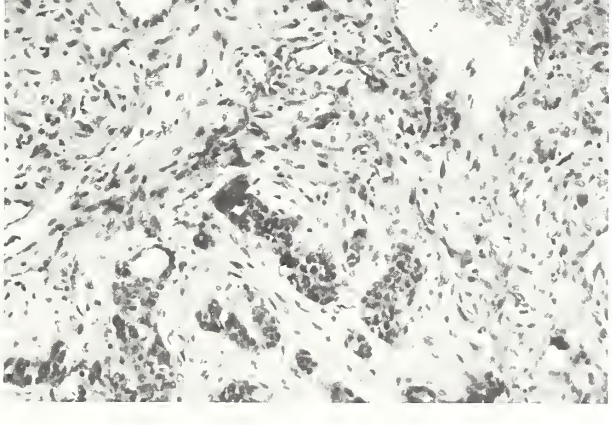


Figure 2A

Metastatic adenocarcinoma involving upper lobe of right lung (1977): Note infiltrating adenocarcinoma essentially identical to initial breast tumor associated with collagenized fibrous tissue (150x).

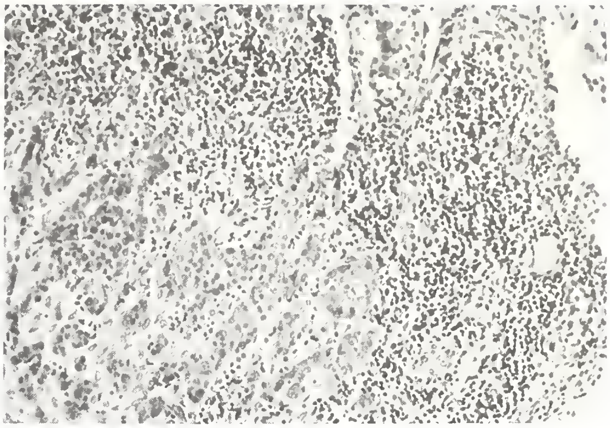


Figure 2B

Note peripheral cuff of mature lymphocytes in another representative area of lung metastases (150x).

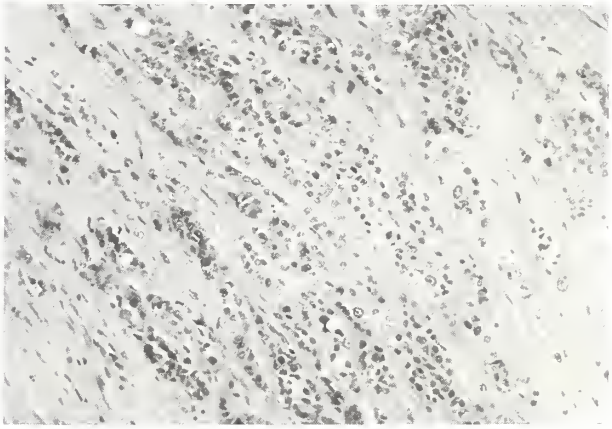


Figure 3

Biopsy of right tonsillar pillar metastases (1982): Note essentially identical histological and cytological character of metastasis with primary breast tumor (150x).

Pathology

Tissue sections and paraffin blocks were available for review from the following specimens including the right breast biopsy, wedge biopsy of upper lobe of right lung, biopsies of right hypopharynx and right tonsillar pillar. The histologic (H&E) and histochemical (Alcian-blue-PAS; PAS; PAS with diastase treatment) appearance of the neoplasm was uniform throughout the entire nine year course.

Low power configuration of the neoplasm demonstrated an infiltrating adenocarcinoma composed of atypical epithelial cells arranged in columns with lumina, small nests and single cell strands ("Indian-file"). These neoplastic cells are associated in all materials with productive fibrosis and a peripheral lymphocytic infiltrate. Within the materials from the metastatic sites the surrounding parenchyma and/or overlying squamous epithelium are essentially unremarkable.

The neoplastic cells are mononuclear, vary slightly in size, polarity, nuclear and cytoplasmic detail within each

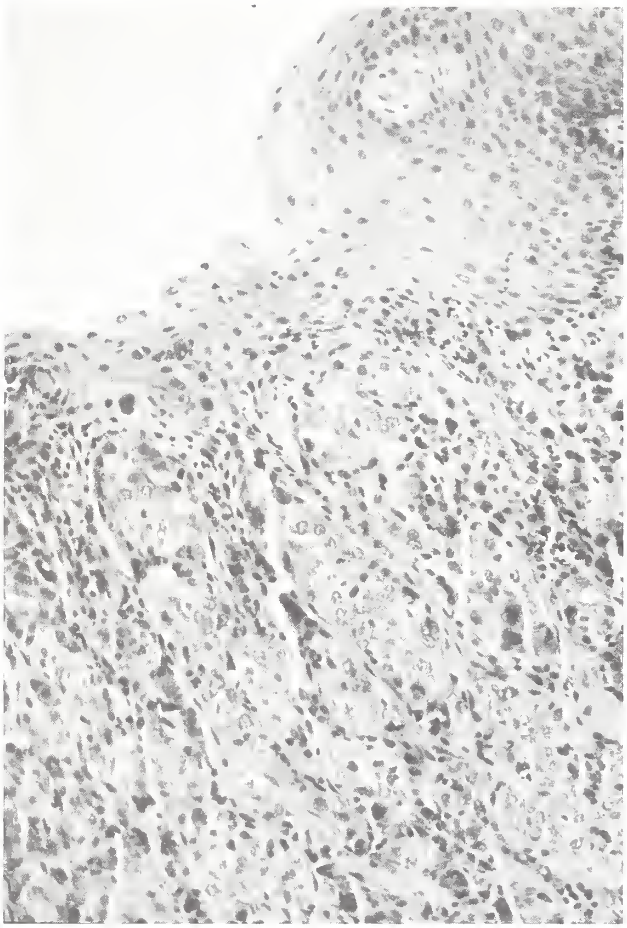


Figure 4

Biopsy from right hypopharynx metastases (1983). Note intact squamous epithelium overlying infiltrating adenocarcinoma essentially identical in cytologic features and histologic pattern to initial breast tumor (150x).

specimen. The cytoplasm is focally vacuolated, granular and eosinophilic. The nuclear/cytoplasm ratio is increased. Many of the neclei are hyperchromatic. Prominent basophilic single nucleoli are present. Mitoses are frequent.

Alcian-blue positive material is present within the neoplastic cell cytoplasm and occasional lumina. PAS positive diastase resistent material is present within the cytoplasm of the neoplastic cells.

The original breast tumor (MU 74-2197) is an infiltrating duct carcinoma with productive fibrosis and atypical epithelial cells in columns, small nests and some single strands. Mitotic activity is frequent. Many of the nuclei are markedly hyperchromatic, some containing prominent nucleoli. The cytoplasm is granular and focally vacuolated. The periphery of the tumor is moderately infiltrated by lymphocytes.

The metastasis in the upper lobe of the right lung (S77-5188) is a histologically similar sclerosing adenocarcinoma with ductular formation. Single cells are arranged in strands associated with collagenized fibrous tissue. The periphery of the metastasis has a similar lymphocytic infiltrate.

The metastasis in the right tonsillar pillar (S82-4458) is an infiltrating moderately well differentiated adenocarcinoma with cells in nests, columns and single strands and densely collagenized fibrous tissue. The edges of the tumor are infiltrated with lymphocytes, and the overall histology resembles the primary breast tumor.

The fourth metastasis is in the right hypopharynx (S83-8520). It is an infiltrating and sclerosing adenocarcinoma with prominent nucleoli and granular cytoplasm with cells arranged in nests, single strands and collagenized fibrous tissue strikingly similar in histology to the breast carcinoma.

Discussion

According to Brownson, two of the six cases of metastatic tonsillar carcinoma from a breast primary were bilateral; all had other metastases, and only one involved the cervical nodes. Gallagher and Martin[15] found that breast malignancies existed one to eight years before the development of clinically discernable breast masses. Even the fastest growing breast carcinomas have a doubling time of twenty-two days. Thus, the growth period of one cell into a one centimeter tumor, requiring thirty doubling times, would be twenty-four months if all cells survived. The average breast carcinoma progresses from one cell to a one centimeter mass in 100 months.[16] This patient's tumor proved to be a relatively slow-growing neoplasm, as evidenced by the absence of axillary node involvement and the clinically disease-free interval between initial presentation and pulmonary nodule, and then the development of the tonsillar lesion. The appearance of the second tonsillar metastasis only one year after the first tonsillar metastasis may represent a change in the predominant cell type of the tumor, a change in the host immunologic system, or possibly a local recurrence outside the field of radiation.

Possible routes of dissemination in this patient include the classical hematogenous and lymphatic channels; the former is the more probable route. The location of the primary lesion suggests that at least part of the venous drainage involved the perforating intercostals as well as the internal mammary vein. The intercostals freely communicate with the vertebral plexus. The vertebral plexus is a valveless system, providing a channel for retrograde flow of malignant cells as described by Batson.[17] Furthermore, malignant cells can gain access to the intravascular space within the lymph nodes in the absence of histologic adenopathy. The lymphatic route is possible, but unlikely. Direct seeding of the tonsillar bed during bronchoscopy for work-up of the pulmonary nodule has been suggested as another possible route of dissemination.[18,19]

Tonsillar metastases, regardless of the site of original malignancy, are rare. However, the clinician should maintain a high index of suspicion when faced with a patient with persistent pharyngitis, ulcerated tonsillar mucosa, unilateral enlargement of tonsils, dysphagia, or odynophagia.

REFERENCES

1. Fisher B, Carbone P: "Breast Cancer." Ed. Holland JF, Frei E, Cancer Medicine. Lea and Febiger, 2nd edition Philadelphia, 1982, pp 2025-2056.
2. Axtell LM, Cutler SJ, Myers MH: End results in cancer. Report No 4 DHEW Public, Bethesda, Nat Cancer Inst 1972, 73-272.
3. Batsakis JG: "Metastatic neoplasms to and from the head and neck." Tumors of the Head and Neck, Clinical and Pathological Considerations. The Williams & Wilkins Co, Baltimore 1979, pp 240-250.
4. Meyer I, Shklar G: Malignant tumors metastatic to mouth and jaws. Oral Surg 1965, 20:350-362.
5. Bernstein JM, Montgomery WW, Balogh K: Metastatic tumors to the maxilla, Nose and Paranasal Sinus. Laryngoscope 1966, 76:621-650.
6. Nahum AJ, Bailey BJ: Malignant tumors metastatic to the nose and paranasal sinuses: Case report and review of the literature. Laryngoscope 1963, 73:942-953.
7. Hill BA, Kohut RI: Metastatic adenocarcinoma of the temporal bone. Arch Otolaryngol 1976, 102:568-571.
8. Richard JM, Micheau C: Malignant cervical adenopathy from carcinoma of unknown origin. Tumori 1977, 63:249-258.
9. Zahn FW: Über einige Falle seltener Geschwulstmetastasen (Magen, Ovarien, Tonsillen.) Virchows Arch A 1889, 117:30-37.
10. Epstein J: Blutbefunde bei metastatischer Carcinose des Knochenmarkes. Z Klin Med 1896, 30:121-128.
11. Stoll A: Zur Kenntnis des metastatischen Tonsillarcarcinoms. Arch Laryngol Rhinol 1913, 28:267-70.
12. Sturzenegger C: Beitrage zur Krebsmetastase, inaugural dissertation, Zurich 1892.
13. Kebattu J, Martin H: Metastase amygdalinne d'un epithelioma du sein. Presented at the Société O-R-L de Lyon February, 1949.
14. Honsel B: Über maligne Tumoren der Tonsille. Bruns Beitr Klin Chir 1895, 14:737-788.
15. Gallagher HS. Martin JE: The study of mammary carcinoma by mammography and whole organ sectioning: Early Observations. Cancer 1969, 23:855-873.
16. Gallagher HS, Leis HP, Snyderman RK, Urban JA: Incidence and mortality of breast cancer, The Breast, The CV Mosby Co, St. Louis, 1978 pp 33-36.
17. Batson OV: The function of the vertebral veins and their role in the spread of metastases. Ann Surg 1940, 112:138-149.
18. Brownson RJ, Jacques WE, LaMonte SE, Zollinger WK: Hypernephroma metastatic to the palatine tonsils. Ann Otol 1979, 88:235-240.
19. Panikker S: Case report of secondary carcinoma of tonsil. J of Laryngology & Otology 1957, 71:489-494.

The Ganser Syndrome: A Diagnostic and Etiological Enigma

MICHAEL ALFRED PESZKE, M.D. AND GALE ANNE LEVIN, M.D.

Case Report

A 17 year-old Hispanic male was admitted to the University Psychiatric Service with the complaint "I've been crazy ever since my accident," this being a fall from a four story building, (about 18 months prior to admission) with resulting coma, frontal bone fracture and subdural hemorrhage. Three months later, the patient had his first psychiatric admission due to behavioral changes and possible seizures. Treated with phenytoin sodium 100 mg/tid and chlorpromazine 50 mg/tid, he was transferred to outpatient care after two months where his neuroleptic was changed to haloperidol 6 mg/tid with benztropin mesylate 1 mg/bid. The social and behavioral problems recurred and the mother brought the patient to the University Hospital because she was having difficulty dealing with the patient's increased violence, agitation, moodiness, and forgetfulness. The mother's understanding of his illness was that she needed to watch him 24 hours a day to make sure that he would not swallow his tongue. This contributed to the increased tension at home. The patient admitted to smoking marijuana and experimenting with glue sniffing and PCP. Abuse of alcohol resulted in hand tremors and blackouts.

Past psychiatric history was otherwise negative. Past medical history was positive for a question of hepatitis secondary to transfusion during a hospitalization three years prior to admission.

Family History: the patient lived at home with his divorced mother and seven siblings (ages 1-18) by several different fathers, and in the past, prior to the accident, had been placed in a foster home because of behavioral problems. He had reached the ninth grade prior to the accident at age 16. The family history was significant in that an older brother had been killed (at age 17) in a car crash two years prior to the patient's accident. Thus the patient became the oldest male in the household and attempted (by and large unsuccessfully) to take over some of the leadership role. The patient's mother was 35 years old, unemployed, and had been hospitalized for one day in "a coma" (most likely hysterical) after her oldest son's death. The father lives in New York and the patient does not see him.

The mental status examination showed a pleasant, neat, alert, 17 year old Hispanic male, small for his age, and with an ataxic gait. The patient was oriented to person and place, but unaware of the day, month, or year. His mood was euthymic, his affect was relaxed and appropriate. General information, memory, and concentration were all poor with vir-

---

MICHAEL ALFRED PESZKE, M.D., Professor of Psychiatry; Director of Psychiatric Clinical Services, University of Connecticut Health Center, Farmington, CT. GALE ANNE LEVIN, M.D., at that time resident, Department of Psychiatry, University of Connecticut Health Center Training Program.

tually no correct answers. Abstractions, judgment, and insight were fair to good. His speech was sometimes tangential and often circumstantial and inattentive. He had no flight of ideas or loose associations. By history, he did have some visual hallucinations of horses and a friend; as well as pseudo hallucinations of friends talking about him. At the time of admission, the patient denied suicidal or homicidal ideation although there was a history of an apparent suicidal attempt or gesture with Dilantin early in the year.

Physical examination was positive for the stigmata of his accident including ataxic gait, scars on his forehead, abdomen, and right arm, hearing loss in his left ear, left facial droop, relative weakness and paresthesia on the left side, and hyperreflexia on the left side. All laboratory results were normal as were the EKG, EEG, and chest x-ray.

During his stay, the patient behaved differently with different staff members. To the doctors he seem disabled although cooperative; with nurses he was often flirtatious and a compliance problem. With fellow patients he demonstrated a lot of bravado, teaming up with another adolescent on the unit and intimidating patients with pranks and disruptive behavior. Since specific psychotic symptomatology was absent after one week, the neuroleptics were discontinued with minimal change in his behavior and mental status.

His perplexing presentations suggested a variety of diagnoses. Temporal lobe epilepsy, schizophrenia, and the *Ganser Syndrome* were considered. It was also speculated that his behavior was simply a reflection of the patient's socio-cultural background and age. The neurology consultation, including EEG and CT Scan, ruled out a neurological etiology for his symptoms.

The patient, in a naive manner, commented that his primary motivation for hospitalization was to avoid being put in jail (a larceny charge had been lodged prior to admission) as well as to acquire monetary compensation for his accident (the fall) in order to buy his mother a new home.

Psychological testing was requested and performed. The consultant emphasized that the validity had to be questioned since the client was young and from a minority culture, both of which tend to overestimate pathology. The IQ was determined as 70 and on the borderline between dull normal and mildly retarded, but a number of responses were considered to be highly concrete. Examples, to "who is Louis Armstrong?" the patient responded, "weight lifter." The concept of talking past the point was demonstrated by the following: the shape of a ball is "a square"; that there are "49 or 94 months in the year"; and that the American Flag is "yellow, green, and black."

Overall assessment and diagnosis was of an atypical psychosis. The psychological testing was consistent with the possibility of a conscious attempt to appear mentally impaired.

The patient's legal problems were confirmed by his probation officer who said that he was to stand trial for theft of two cars and some jewelry. The officer also revealed that the patient had demonstrated antisocial characteristics in his lifestyle even prior to his accident.

The patient expressed frustration that his mother was treating him like a child with an apparent resulting loss of his position of authority in the family. As limit setting on the unit became frustrating for the patient, he claimed that his hallucinations had been made so as to appear crazy. His responses were not age appropriate and manifested poor self confidence, minimal frustration tolerance and required considerable supportive feedback and encouragement.

When his mother was called to discuss discharge plans, the patient became very agitated. He feared that follow-up treatment was tantamount to a foster home placement. The patient was also very concerned that he would be seen as a "retard" were he to attend a psychiatric clinic after discharge. The patient was discharged 18 days after admission with his confusion significantly cleared and no further approximate answers or hallucinations. Arrangements were made for him to have outpatient therapy in a mental health clinic near his home.

The final Axis I diagnosis was that of atypical psychosis.

The combination of fanciful fantasy, history of head trauma, hallucinations, approximate answers, and obvious secondary gain, led us to think of the *Ganser Syndrome*.

Review of Literature

In 1898 a German psychiatrist, Sigbert J.M. Ganser, described a state in three prisoners who manifested disturbance of consciousness, hallucinations, sensory changes reminiscent of hysteria, and peculiar verbal responses described as "talking past the point." Ganser himself called it—*an unusual hysterical confusional state.*[1] It became known in psychiatric literature as the *Ganser Syndrome.*[2]

A review of the English language psychiatric literature highlights the problems of both etiology and diagnosis. The early reported cases all occurred in prison settings, and it has often been called prison psychosis. But in recent years, it has also been reported in general psychiatric practice.

Weiner and Braiman, conclude that the *Ganser Syndrome* is a psychotic state which represents a reaction to intolerable stress where the individual feels utter helplessness because of externally imposed pleasant constraints.[3] They propose that the symptoms which they consider to be the core of the *Ganser Syndrome*, (namely, amnesia with loss of personal identity and talking past the point) represent an unconscious desperate attempt for the patient to deceive himself and others by casting off or concealing his personal identity.

Goldin and McDonald, on the basis of their own clinical experiences, propose that the Ganser State is an intermediate position between malingering and hysterical states.[4] They suggest that the symptoms are an imperfect representation of a confusional psychosis and correspond to the patient's notion of insanity, while serving the purpose of evading responsibility. All of their patients had a prior history of hysterical temperament or of other hysterical symptoms.

Whitlock adds a new dimension to the discussion of the *Ganser Syndrome*, emphasizing the frequency of a prior history of significant head injury.[5] It should be emphasized that of the three cases originally described by Ganser, two had suffered serious head injuries, and a third was recovering from severe typhus with prolonged convalescence and psychic alterations.

Whitlock furthermore differentiates hysterical pseudodementia from the *Ganser Syndrome*, stating that it is the clouding of consciousness that is the hallmark of the *Ganser Syndrome* and concurs with the eminent British forensic psychiatrist, Scott, who urged a differentiation between *Ganser* symptoms and the *Ganser Syndrome*.

Whitlock also refers to the study by Estes and New of military prisoners (50 cases in 8,000 inmates) which concluded that the *syndrome* is an attempt to escape an intolerable situation by a substitution of pleasurable fantasy, thus making it dynamically similar to conversion hysteria. Yet these authors concluded that it is a psychotic state most likely of acute schizophrenic origin. Whitlock himself states "it might be best to regard the *Ganser Syndrome* and symptoms as peculiar mental states precipitated by severe emotional stress, leading to transient psychotic illness usually of brief duration."

In recent years the syndrome has been described in non-incarcerated psychiatric patients but always associated

Prevent recurrences month after month*

ZOVIRAX® (acyclovir) CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psychosocial difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance $\leq$10 ml/min/1.73/m^2.

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"- Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

---

*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

Wellcome

Burroughs Wellcome Co.
Research Triangle Park
North Carolina 27709

Copr. © 1986 Burroughs Wellcome Co. All rights reserved. 86-ZOV-5

with an external stress, caused by the patient's own poor judgment.

Rieger and Billings reported a case of *Ganser Syndrome* associated with litigation.[6] Their differential diagnosis was: 1) organic brain syndrome, 2) schizophrenia, 3) hysterical neuroses, and 4) malingering. The authors were of the opinion that "three pending law suits played a significant etiological role. This speculation was further substantiated by the wife's report that the patient seemed to improve significantly when learning of his being granted disability payments." The authors refer to a number of case reports which associated development of the *Ganser Syndrome* to compensation issues particularly after a head injury.

Latcham, et al., also reported a case where a head injury was followed by clouding of consciousness, impaired intellectual functioning, and approximate answers.[7] These authors express an opinion that a severe concussion following an automobile accident unmasked hysterical features. But in view of the fact that the accident occurred in a stolen automobile the possibility of a dissociative reaction also has to be considered.

That is the point made by Cocores, et al., who present a most comprehensive review of *Ganser* symptoms and give their reported two cases the (Axis I) diagnosis of conversion disorder and atypical dissociative disorder as well as atypical psychosis.[8] But they conclude that *Ganser Syndrome* is an atypical dissociative disorder.

The natural history of psychopathology in general is still poorly known, and the prodromal stages of serious psychopathology are rarely typical of the final disease. Slater documents the high incidence of schizophrenia initially diagnosed as hysteria.[9] Hay argues that feigned psychosis is a prodromal presentation of severe pathology.[10] While Meyer-Gross, et al., contend that when followed over a period of time, individuals diagnosed as *Ganser Syndrome* become schizophrenic.[11]

Discussion

Reviewing the cases reported and analyzing our own case, it seems that we have two problems: 1) the difficulty that has been experienced by psychiatric nosologists in general and the editors of DMS-III in particular;[12] and 2) the problem of the Axis II diagnosis.[13] The clinical picture caught in the momentary opening of the shutter of the psychiatric diagnostic camera does not reflect well the whole dynamic fluid movement of the life process of the patient and does not contribute to the understanding of the complex genetic and environmentally learned coping strategies.

The life histories of the patients diagnosed as having *Ganser Syndrome* all suggest a personality disorder, but it appears to be a mixture of antisocial, and borderline traits with hysterical manifestations.

Assuming that we accept the concept that behavioral disorders, even of psychotic severity, which appear to have a secondary gain, are hysterical (or factitious) then a strong argument can be made for viewing the *Ganser Syndrome* as having such an etiological foundation.

To support this argument we would refer to Skottowe who conceptualized a definition of hysteria as: 1) the symptoms are an imperfect representation of the condition that they purport to resemble, 2) they correspond to the mental image that the patient has of this condition, and from which he perceives desired benefit, 3) a careful history elicits prior hysterical attacks.[14]

Psychologically vulnerable individuals who find themselves in extreme stress and externally coerced by situations from which there appears to be no reasonable escape or resolution may develop defensive strategies, often to a certain extent manipulative, to cope with the situation. Thus, if in the resolution of many psychological conflicts, conversion symptoms appear to mimic symptoms of real physical disorder, so psychologically vulnerable individuals who find themselves in extreme and severe stress may develop psychological symptoms which will approximate the symptoms of a genuine mental disorder.

In the introduction to *factitious disorders*, the editors of Diagnostic Statistical Manual-III make the point that "in factitious disorders behavior under voluntary control is used to pursue goals that are involuntarily adopted."[15]

Furthermore, our experience tends to suggest that conversion disorders occur in hysterical individuals who experience acute psychological stress but who come from communities or families which are to some extent psychologically unsophisticated. The blow to the head and its resulting sequelae merely predetermine the focus of the symptomatology.

It could be hypothesized that the *Ganser Syndrome* or state represents an attempt on the part of such an individual who has significant psychological liabilities to mimic psychological disorder through semivolitional symptoms which are representative of that cultural group's perception of craziness. In other words, it is the mad attempting to be seen as crazy. The crucial and paradoxical symptom of speaking past the point can be best understood by the unsophisticated belief that craziness is analogous to, or at least encompasses, stupidity. This is still too often a generalized perception of the psychiatrically disturbed.

The setting and thus the characteristics of the patients manifesting *Ganser* symptoms have undergone some changes. Yet there is a continuing common theme of individuals who have marked pre-morbid personality disorders (Axis II) and who are stressed by external circumstances in an ongoing continuous manner. While the stressor is clearly external and the patient a victim, the histories of all cases described suggest that the patient is aware that his behavior has brought on the psychosocial crisis and the patient is attempting in a variety of unconscious and idiosyncratic ways to cope and to escape the unpleasant consequences by altering his own responsibility.

Perhaps the main reason the *Ganser Syndrome* is so difficult to define may be attributed to the nebulous intermediate position that it seems to hold, comprising elements of hysteria, conversion disorder, factitious illness, outright malingering, and frank flagrant psychosis. The symptoms are often referred to as being psychotic and yet also being under volitional control.

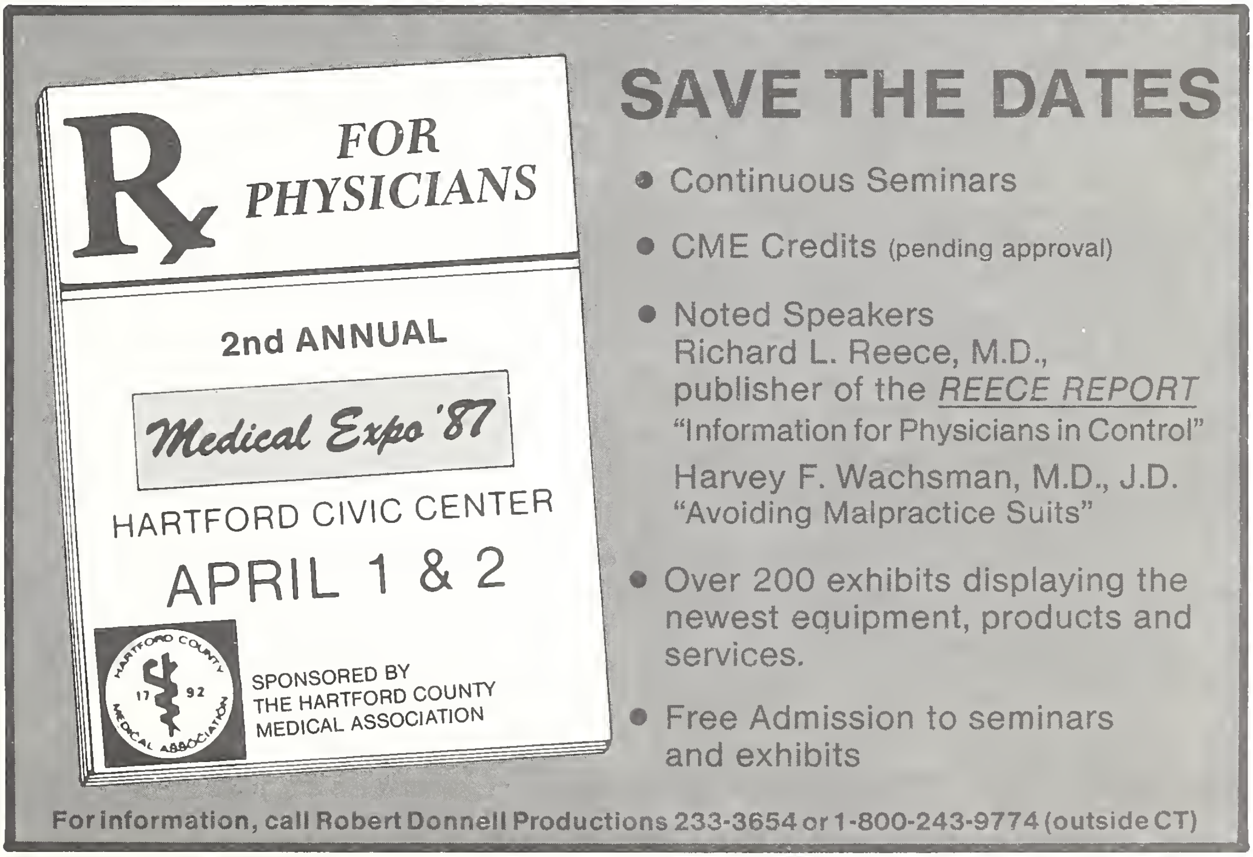
The discrepancies may be more apparent than real if we acknowledge that the manifest present behavior (talking past the point, amnesia, etc.) while volitional are also in a subtle way a form of a breakdown of the synthetic, integrative, and coping function of the ego, and thus symptomatic of a psychotic break. Furthermore, the *Ganser Syndrome* is almost always superimposed on a severe personality disorder, which further accentuates the bizarre volitional behavior.

The authors suggest that the *Ganser Syndrome* more appropriately belongs to the category of atypical psychosis in the recent edition of DMS-III. The recent cases that have been reported have occurred in general hospitals, which suggest that we will see more of this interesting psychopathology.

REFERENCES

1. Shorer CE: The Ganser Syndrome (Translation of Ganser SJM, Vurber einen eigenartigan hysterischen Daminszustand). Brit J of Criminology 1965, 5:120-126.
2. Lehman HE in Kaplan HI, Freedman AM, Sadock BJ eds: Comprehensive Textbook of Psychiatry/III. Baltimore 1980.
3. Weiner H, Braiman A: The Ganser Syndrome. Am J Psychiat 1955, 111:767-773.
4. Goldin S, McDonald JE: The Ganser State. J Ment Science 1955, 101:267-280.
5. Whitlock FA: The Ganser Syndrome. Brit J Psychiat 1967, 113:19-29.
6. Rieger W, Billings CK: Ganser's Syndrome Associated with Litigation. Comprehensive Psychiatry 1978, 113:19-29.
7. Latcham R, White A, Sims A: Ganser Syndrome: Etiology Argument. J Neurol, Neurosurg and Psychiat 1978, 41:851-854.
8. Cocores HA, Santa WG, Patel MD: The Ganser Syndrome: Evidence Suggesting Its Classification as a Dissociative Disorder. International J of Psychiat in Med 1984, 14:47-56.
9. Slater E: Diagnosis of Hysteria. Brit J Med 1965, 1:1395-1399.
10. Hay GG: Feigned Psychosis—A Review of The Stimulation of Mental Illness. Brit J Psychiat 1983, 143:8-10.
11. Mayer-Gross W, Slater E, Roth M: Textbook of Psychiatry. London 1969.
12. American Psychiatric Association, Diagnostic and Statistical Manual III. APA Washington 1980.
13. Millon T: Disorders of Personality; DMS-III: Axis III. New York 1981.
14. Skottowe I: Clinical Psychiatry for Practitioners and Students. London 1964.
15. American Psychiatric Association, op cit.

Acknowledgement: The authors are grateful to Howard Tennen, Ph.D. for the administration and interpretation of psychological tests.



℞ FOR PHYSICIANS

2nd ANNUAL

Medical Expo '87

HARTFORD CIVIC CENTER

APRIL 1 & 2

SPONSORED BY
THE HARTFORD COUNTY
MEDICAL ASSOCIATION

SAVE THE DATES

- Continuous Seminars
- CME Credits (pending approval)
- Noted Speakers
  Richard L. Reece, M.D.,
  publisher of the REECE REPORT
  "Information for Physicians in Control"
  Harvey F. Wachsman, M.D., J.D.
  "Avoiding Malpractice Suits"
- Over 200 exhibits displaying the newest equipment, products and services.
- Free Admission to seminars and exhibits

For information, call Robert Donnell Productions 233-3654 or 1-800-243-9774 (outside CT)

Disseminated Aspergillosis and Cushing's Syndrome in a Community Hospital

PAUL M. MURRY, M.D. AND MARY JEAN AHERN, M.D.

ABSTRACT—We are presenting a case of fatal disseminated aspergillosis which occurred in a patient with Cushing's syndrome in a community hospital to alert and emphasize to the clinician that patients presenting with uncommon opportunistic infections without evidence of immunosuppression should be evaluated for possible Cushing's Syndrome. A 71-year old white male presented to our hospital with crescendo angina. Subsequent evaluation revealed endogenous Cushing's Syndrome. The diagnosis of aspergillosis was made on the 31st hospital day, six days prior to the patient's demise. Review showed that our patient's presentation was different from that most frequently reported in the literature. Most patients are known to have immunosuppression secondary to hypercortisolism. Our patient was undiagnosed and had a rapid, fulminant course which ended in death.

Case Report

This 71-year old white male with a long history of hypertension, arthritis, and angina pectoris presented to the emergency room with a chief complaint of increasing, intermittent, substernal chest pains associated with diaphoresis, palpitations, and with radiation to the arms and neck which was relieved by sublingual nitroglycerine (SL NTG). Additional complaints included bilateral ankle swelling, and difficulty in urination which was not associated with dysuria or hematuria. Past history also revealed that the patient had a 15 pound weight loss in the month preceeding admission.

The patient's medications included Triamterene 50mg combined with hydrochlorothiazide 25mg p.o. daily, nadolol 40mg p.o. daily and 0.4mg SL NTG.

He gave no past medical history suggestive of malignancy or diabetes.

The patient was a retired laborer living with his wife. He was an ex-2-3 pack per day smoker who stopped 10 years prior to admission. There was no history of alcohol usage. His father, brother, and sister died of heart disease. There was no family history of arthritis or hypertension.

The patient was moderately obese with a blood pressure of 140/90 and a temperature of 98 degrees rectally. The physical examination including his lung fields was normal with the exception of an irregular heartbeat coupled with a grade II/VI systolic murmur and 2+ bilateral lower extremity pitting edema.

Laboratory studies included an electrocardiogram (ECG) which showed atrial fibrillation, left anterior hemiblock, old inferior wall myocardial infarction, and left ventricular hypertrophy. There was no previous ECG available. A chest X-ray showed left ventricular enlargement with clear lung fields. His urine showed 15-20 RBC/high power field (HPF), 15-20 WBC/HPF with many bacteria and a trace protein. His total WBC count was 8700 with 75% segmented forms, 7% band forms, 14% lymphocytes, and 4% monocytes. Blood chemistries included a blood sugar of 475 mg/dl, blood urea nitrogen of 29 mg/dl, sodium 138 meq/l, potassium 4.1 meq/l, chloride 91 meq/l, carbon dioxide 28meq/l and a creatinine of 1.1 mg/dl. SMA-12 biochemical profile was abnormal with a phosphorous of 2.5 mg/dl, cholesterol 289 mg/dl, SGPT 39 I.U./l, and LDH 172 I.U./l. Urine grew greater than 1,000,000 colonies of *E. coli.* Blood cultures were negative. Arterial blood gases showed a pH 7.48, PaCO2 46 torr, Pa02 100 torr, 02 saturation at 97% and bicarbonate 33.7 meq/l.

The impression at admission was unstable angina, new onset atrial fibrillation and possible myocardial infarction and previously undiagnosed diabetes mellitus.

Hospital Course

The patient was admitted to the coronary care unit for conversion of his atrial fibrillation and subsequently was transferred to the medical floor after an uneventful course in the coronary care unit. His new onset hyperglycemia required low-dose insulin for control. An echo-cardiogram showed aortic valvular calcification with decreased motion and concentric left ventricular hypertrophy. Because of a persistent complaint of back pain, spinal films were obtained which showed marked osteoporosis. The evaluation of the osteoporosis revealed that AM and PM serum cortisols were greater than 60 mcg/ml (normal AM cortisol = 2-9 mcg/ml, normal PM cortisols = 7-25 mcg/ml). Additional endocrinological studies included a 24-hour urine for free cortisol which was 5540 mcg/24 hr (normal = 20-90 mcg/24 hr). A dexamethasone suppression test which was greater than 60 mcg/ml, urine for 17-hydroxycorticosteroids was 269 mg/24 hr (normal = 4.5 - 12 mg/24 hr in a male), and 17-ketosteroids was 152 mg/24 hr (normal = 9-22 mg/24 hr in a male). A baseline plasma cortisol level was increased at 78 mcg/ml; all of which was supportive of a diagnosis of Cushing's Syndrome.

PAUL M. MURRY, M.D., Resident, Internal Medicine, Department of Medicine, Griffin Hospital, Derby, CT. MARY JEAN AHERN, M.D., Director, Infectious Disease Section, Griffin Hospital; Associate Clinical Professor of Medicine, Yale University School of Medicine.

On hospital day 28, the patient had an episode of unresponsiveness with cyanosis which spontaneously resolved; evaluation included an ECG with increased lateral wall ischemia; a lung scan which showed a low probability and a chest x-ray which showed new, bilateral, patchy, parenchymal infiltrates throughout the entire right lung and the left lower lobe. Blood sugar was 200 mg/dl. Due to his rapidly deteriorating pulmonary status, sputums were obtained for culture and bronchoscopy was performed: fungal forms were noted in the stains of the bronchial washings. A CT scan of the abdomen revealed right adrenal hyperplasia, and a poorly visualized left adrenal. Glutethamide was administered to suppress the production of cortisol. After aspergillus was noted in the bronchial washings, amphotericin B therapy was begun. Progressive deterioration of the patient's clinical status culminated in the patient's demise six days after the institution of amphotericin B therapy. The autopsy findings demonstrated aspergillus in the brain, in the lungs and in the myocardium. No tumor was found despite an exhaustive search. The adrenal glands showed bilateral hyperplasia.

Comment

Elevated corticosteroids are known to alter cellular immunity by selective T-cell subset depression. Patients with increased corticosteroid levels are predisposed to infection, and, the increased steroid levels present are capable of masking early signs of infection. Continuous overproduction of hydrocortisone profoundly damages circulating T-cells. The B-cells, characterized by antibody production, are relatively less affected by this increase.[1] The alteration in T-cell function is reversible by decreasing the amount of circulating corticosteroid.[2] Superficial cutaneous or mucous membrane fungal infections commonly occur in patients with Cushing's Syndrome.[3] These infections frequently predate the diagnosis of adrenal hypercortisolism, since cell-mediated immunity is the major defense mechanism of the body against these cutaneous fungal infections. Coincidentally, oral candidiasis, esophageal cadididiasis, and onychomycosis have also been noted to occur more frequently in patients with Cushing's Syndrome than in patients without elevated steroids.[3] With few exceptions, pulmonary infections in the patient with hypercortisolism invariably proceed to death unless the condition is appreciated prior to the onset of the opportunisitic infection. Four major pulmonary infections reported to have occurred in patients with Cushing's Syndrome are *Pneuocystis carinii*, aspergillosis, nocardiosis, and cryptococossis.[4,5] In the Vanderbilt study by Graham and Tucker,[4] it was noted that cryptococossis occurred more predictably in patients with serum cortisol levels less than 70 mcg/dl and *Pneumocystis carinii* infections were more prevalent among those with a serum cortisol level of greater than 121 mcg/dl. All patients in the study who contracted systemic aspergillosis died. The literature also states that opportunistic infections occurred more commonly in patients with Cushing's Syndrome secondary to ectopic ACTH producing tumors or adrenal tumors than in those with bilateral adrenal hyperplasia.[4] Although we report this case as an example of Cushing's Syndrome, pituitary in origin, since we found no tumor in spite of an exhaustive search by our pathology section; we must state that an occult tumor with ectopic ACTH production cannot be excluded with complete confidence since these serum cortisol and steroid metabolite levels are most often seen in tumor-associated disease. A 15% mortality rate was attributable to opportunistic infections in these patients which was unrelated to neutropenia. As in cases reported by Walsh et al.,[6] our patient did not have associated leukopenia or prior cytotoxic therapy. The only factor was hypercortisolism. The literature documents that prompt control of hypercortisolism is vital if successful treatment is to be anticipated.[4,6] Extreme hypercortisolism should be considered an immunological and endrocrinological emergency. A careful search for opportunistic infection must be undertaken in all such patients, since high levels of corticosteroids mask many of the expected signs and symptoms of infection with bacterial, fungal, or viral organisms. Additionally, all patients presenting with opportunistic infections without a history for hypercortisolism should be investigated for the possbility of an ACTH producing tumor or adrenal hyperplasia. Early appropriate therapy for these opportunistic infections, in conjunction with measures taken to reduce steroid levels, can hopefully lead to an increased survival.

REFERENCES

1. Fauci AS, Dale DC, Balow JE: Glucocorticosteroid Therapy: Mechanisms of Action and Clinical Considerations. Annals of Internal Medicine 1976, 84:304-15.
2. Britton S, Thoren M, Sjoberg HE: The Immunological Hazard of Cushing's Syndrome. British Medical Journal 1975, 4:678-80.
3. Findling JW, Tyrell JB, Aron DC, Fitzgerald PA, Young CW, Sohnle PG: Fungal Infections in Cushing's Syndrome. (letter) Annals of Internal Medicine 1981, 95:392.
4. Graham BS, Tucker WS: Opportunistic Infections in Endogenous Cushing's Syndrome. Annals of Internal Medicine 1984, 101:334-8.
5. Kramer M, Corrado ML, Bacci V, Carter AC, Landsman SH. Pulmonary Cryptococcosis and Cushing's syndrome. Archives of Internal Medicine 1983, 143:2179-80.
6. Walsh TJ, Mendelsohn G: Invasive Aspergillosis Complicating Cushing's Syndrome. Archives of Internal Medicine 1981, 141:1227-8.

Nearly
80 million people
couldn't picture
their lives
without it.

*Carry the
Caring Card.®*

Chronic Disease in a General Adult Population

Findings From the Rand Health Insurance Experiment

KATHLEEN N. LOHR, PhD, *Washington, DC;* CAREN J. KAMBERG, MSPH, AND EMMETT B. KEELER, PhD, *Santa Monica, California;* GEORGE A. GOLDBERG, M.D., *Boston;* THOMAS A. CALABRO, MSPH, *Newport Beach, California,* AND ROBERT H. BROOK, M.D., ScD, *Santa Monica, California*

Using questionnaire and physical screening examination data for a general population of 4,962 adults aged 18 to 61 years enrolled in the Rand Health Insurance Experiment, we calculated the prevalence of 13 chronic illnesses and assessed disease impact. Low-income men had a significantly higher prevalence of anemia, chronic airway disease and hearing impairment than their high-income counterparts, low-income women a higher prevalence of congestive heart failure, diabetes mellitus, hypertension, hearing impairment and vision impairment. Of our sample, 30% had two or more. Several significant pairs or "clusters" of chronic illnesses were found. With few exceptions (diabetes, hypertension), the use of physician care in the previous year for a specific condition tended to be low. Disease impact (worry, activity restriction) was widespread but mild. Persons with angina, congestive heart failure, mild chronic joint disorders and peptic ulcer disease reported a greater impact than persons with other illnesses.

(Lohr KN, Kamberg CJ, Keeler EB, et al: Chronic disease in a general adult population—Findings from the Rand Health Insurance Experiment. West J Med 1986 Oct; 145:537-545)

Treating chronic disease presents an ever-increasing challenge to the medical community. As a consequence of progress in curing acute diseases, the emphasis in medicine has turned to long-term management of functional impairments associated with chronic conditions. We can assess the burden of chronic illness in many ways—epidemiologic, economic and psychologic. Despite extensive statistics on the incidence and prevalence of individual diseases, however,[1-13] we know little about the overall ramifications of chronic illnesses for a general population of nonelderly adults.

Chronic diseases can be defined as conditions that last more than three months; they encompass incurable diseases (such as osteoarthritis, hypertension), seasonal conditions (such as allergic rhinitis) and those that disappear and then "flare up" (peptic ulcer). They may appear singly or in combinations.[14,15] Among adults younger than 65 years, about 33% (or nearly 20 million persons) suffer from one or more chronic disease that limit their function.[16,17] They are disproportionately poor and elderly; more than half face limitations in their major life activities (work, housework and so forth).[17-19]

The nation devotes 80% of its health resources to chronic disease.[20-26] "Indirect costs" in the form of earnings lost often exceed "direct costs" for medical treatment.[26] Persons with rheumatoid arthritis, for instance, earn 50% of the income they might otherwise have earned.[27]

Significant psychologic effects of chronic disease include concern about the disease itself, worry about not being able to carry on normal activities, anxiety about the loss of independence and loss of work and uncertainty about the cost of treatment. For example, 63% of patients with rheumatoid arthritis in one study experienced a major change in their psychosocial status as a result of their disease.[28]

Little information in the clinical literature illuminates the chronic disease status of the general adult population.

From the Behavioral Sciences Department, The Rand Corporation, Washington, DC (Dr. Lohr); the System Sciences Department (MS Kamberg, Dr. Goldberg and Dr. Brook), the Economics and Statistics Department (Dr. Keeler), and the Computer Sciences Department (Mr. Calabro). The Rand Corporation, Santa Monica, California, and the Departments of Medicine and Public Health, UCLA Center for the Health Sciences, Los Angeles (Dr. Brook). Dr. Goldberg is now with the Health Policy Institute, Boston University, and Mr. Calabro is with Computer Systems and Applications, Newport Beach, California.

This research was supported by Health Insurance Study grant No. 016B80 from the US Department of Health and Human Services.

The views expressed are those of the authors and do not necessarily represent those of the United States Government or The Rand Corporation.

Reprint requests to Kathleen N. Lohr, PhD, The Rand Corporation, 2100 M St NW, Washington, DC 20037.

Reprinted from *The Western Journal of Medicine*, October 1986.

ABBREVIATIONS USED IN TEXT

CHF = congestive heart failure
COAD = chronic obstructive airway disease
HIE = [Rand] Health Insurance Experiment

Here we combine information on the prevalence, associated effects and use of medical care for important chronic conditions or impairments in a sample of persons 18 to 61 years of age in the United States at the end of the 1970s.

Methods

The Rand Health Insurance Experiment

Data for this paper came from the Rand Health Insurance Experiment (HIE), a decade-long randomized controlled trial of the effects of alternative methods of financing health care services.[29,30] The HIE enrolled 7,706 persons in 2,756 families who participated from November 1974 to January 1982. They came from six sites—Dayton, Ohio; Seattle, Washington; Fitchburg/Leominster, Massachusetts; Franklin County, Massachusetts; Charleston, South Carolina, and Georgetown County, South Carolina—that represented urban and rural locations in the four US census regions. Excluded from the experiment were persons eligible for Medicare because of age or disabilities, persons eligible for care in the military medical system, persons indefinitely institutionalized (such as in prison) and families whose incomes exceeded $57,000 (the upper 3% of the income distribution in mid-1984 dollars). Except for these intentional differences, families were representative of the general population of the area where they resided.

We report on the experience with chronic disease of 4,962 adults (aged 18 to 61 years) up to the time they began their participation in the experiment.

Definitions of Health

Building on the World Health Organization definition of health,[31] we developeed a broad set of health status measures covering several distinct categories:[32] general health (physical, mental and social health and general health perceptions), health habits and physiologic health (presence and impact of various chronic diseases). The physiologic dimension comprised 18 chronic or quasi-chronic "tracer" conditions that met several criteria.[33-48]*

- They are common.
- They can be defined concretely in terms with which most physicians would be comfortable.
- They can be measured easily and accurately with the tools available to the HIE.
- They can cause substantial discomfort disability, morbidity or premature death.
- They are disorders for which appropriate medical care offers considerable symptom relief and control of physiologic status, if not outright cure.

Data Collection

During HIE enrollment, all adults completed a lengthy self-administered medical history questionnaire. The questionnaire contained more than 25 disease-specific batteries; each was introduced by a "skip" question (or set of questions) related to any physician diagnosis in the past or to the past or current presence of significant symptoms related to that illness. Persons who said they did not have a diagnosis or symptom of a particular disease skipped on to the next diagnosis-specific battery. Those who answered the skip question positively were instructed to complete the battery. The remainder of each battery asked about additional symptoms, recency of physician visits for the problem, prescription of and use of medications or other therapies for the condition, self-care practices and adverse effects such as worry or activity restriction that the person attributed to this particular illness (see Table 1).

A randomly selected 60% sample of all adults also took a multiphasic screening examination at which we obtained numerous physiologic measures (see Table 1). Many standard tests were done, such as common blood tests; others provided data specific to our needs, such as those related to arthritis. We asked questions regarding present health or recent drug use so we could properly interpret laboratory test results and avoid contraindicated examinations, such as chest x-ray films for pregnant women. No "hands-on" examination by a physcian was done, neither was an invasive or potentially embarrassing procedure carried out.

For several conditions, we used more than one source of information to classify HIE participants. For instance, we determined which persons believed they had diabetes mellitus from responses to the physician-diagnosis question; we further classified them as having diabetes or not based on the use of insulin or oral hypoglycemic pills or serum glucose reults. This multiplicity of data enabled us to estimate more accurately disease prevalence and to assess the degree to which people who had a condition were aware of and acknowledged that they had it.

Field experience in the first HIE site (Dayton) led us to revise the diagnosis-specific batteries, sometimes substantially. Thus, some results exclude Dayton. Some information is also reported by income status at enrollment (that is, upper and lower third of the family income distribution).

Reliability and Validity

Extensive analyses confirmed the reliability of our disease-specific measures. For all objective tests, test-retest (split-sample) reliabilities were high. Our disease prevalence rates approximated what might be expected in a general adult population, based on comparisons with data generated by the National Center for Health Statistics and specialized prevalence studies.[33-48] Slightly understating disease prevalence is possible, however, because we adopted conservative disease definitions acceptable to experts in the relevant medical specialties and because permanently disabled persons eligible for Medicare (less than 1% of the sample) and the aged were ineligible to participate in the study. We know, however, of no systematic bias in prevalence estimates owing to refusal of persons to participate in the HIE; those who accepted and who refused the initial offer to join the study

---

*Apart from the authors of this article, the following persons were authors of one or more of the disease-specific monographs cited: Kenneth Applegate; Sjoerd Beck, M.D.; Daniel Berman, J.D.; Betsy Foxman, PhD; Marc Rosenthal; Randi Rubenstein; Bonnie Scott, M.D., and John Zielske, M.D.

TABLE 1.—*Sample Questionnaire Items, Screening Examination Tests and Disease Definitions*

Chronic Condition	*Sample Questionnaire Item*	*Screening Examination Measure*	*Definition of Disease at Enrollment**
Anemia	In the past 12 mo, has a doctor prescribed any of these treatments for your anemia: special diet, iron pills or shots, vitamin pills or shots or blood transfusions?	Hemoglobin, hematocrit, erythrocyte count and other hematologic measures	Hemoglobin (grams/d): <13.0, men 18 yr and older <11.5, women 18 yr and older <10.0, pregnant women
Angina pectoris	Have you had any discomfort, heaviness or pressure in your chest during the past 12 mo?	None	Angina probably present or present with mild or moderate impairment according to responses to series of questions about pain in specific locations in chest with or without exertion and use of nitroglycerin
Chronic obstructive airway disease, chronic bronchitis (CB) and chronic obstructive pulmonary disease (COPD)	During the past 3 mo, how much has your chronic bronchitis or emphysema worried or concerned you?	Pulmonary function tests: Forced vital capacity (FVC) Forced expiratory volume in1 s (FEV_1)	CB: phlegm on most days for at least 3 mo of year, or MD diagnosis and use of breathing exercises or postural drainage COPD: $FEV_1<75\%$ of predicted, FEV_1/FVC ratio$<80\%$, *and* has CB; $FEV_1<75\%$ of predicted. FEV_1/FVC ratio $<80\%$, no CB. no CHF, dyspnea. history of smoking
Congestive heart failure (CHF)	Do you currently take diuretic pills for your condition?	Chest x-ray film	Combinations of responses to questions about use of of heart medications, dypsnea at night, MD diagnosis, ankle edema, use of diuretics and dyspnea with little or no exertion
Diabetes mellitus	In the past 30 d, how many days did you actually check your urine at least once?	Postload blood glucose level	Taking insulin or oral antidiabetic agents; 2-h postload glucose >200 mg/dl; 2-h postload glucose level 160 to 199 mg/dl and MD diagnosis
Hay fever (current)	In the past 12 mo, did you get any shots to help prevent hay fever or other plant allergies?	None	Combinations of responses about past history, current symptoms and use of injections or medications
Hearing loss	Can you usually hear and understand what a person says, without seeing his face and without a hearing aid, if he whispers to you from across a quiet room?	Pure-tone Audiometry	Average hearing threshold level without a hearing aid of 26 db or more
Hypercholesterolemia	When was the last time you saw a doctor about your high cholesterol?	Serum cholesterol level	Cholesterol level >300 mg/dl; taking anticholesterol drugs; cholesterol level 260 to 299 mg/dl *and* MD diagnosis or on diet
Hypertension	Has a doctor said that you had high blood pressure?	Blood pressure (BP)	BP $<140/90$ mmHg and taking BP drugs; BP140/90 to 159/95 mmHg with or without medicines and MD diagnosis; BP $>160/95$ mmHg with or without medicines
Joint disorders (arthritis, gout)	How much of the time has the trouble with your joints or muscles kept you from doing the kinds of things other people your age do?	Grip strength, walking speed, joint size of fingers, serum rheumatoid factor, uric acid level	Pain, aching, swelling, stiffness in joints for as long as a month, or when touched, or upon getting out of bed and lasting 15 min or more; MD diagnosis of gout; positive rheumatoid factor test
Thyroid disease	Has a doctor ever said you had goiter or thyroid trouble?	Thyroid function tests: serum T_4 level, T_3 uptake, free T_4 index	Hyperthyroid: Taking thyroid drugs, abnormally low free T_4 index Hyperthyroid: Taking thyroid drugs, abnormally high free T_4 index (and not pregnant or taking contraceptives); abnormally high serum T_4 level
Ulcer disease (active peptic ulcer disease)	In the past 3 mo, have you been troubled by episodes or attacks of stomach pain or stomachache (other than that caused by overeating)?	None	Previous MD diagnosis *and* taking antacids daily or recent and frequent episodes of stomach pain relieved by milk, occurring > ½ h after eating or occurring at night
Functional far vision impairment	During the past 3 mo, how much of the time have eyesight problems kept you from doing the kinds of things other people your age do?	Visual acuity: without correction; with correction if available; pinhole acuity	Vision in one or both eyes, with correction if available, is worse than 20/20

MD = physician, mmHg = millimeters of mercury, T_3 = triiodothyronine, T_4 = thyroxine appear not to differ in any material way.[49]

---

*For more details on each condition, see references 33 to 48

Controlling for Age and Sex

Because chronic disease is more prevalent among older people and women, we should adjust for age and sex when testing whether diseases are related to income or to each other. In this paper, we have used regression for adjustment. To investigate the effects of income on disease and the effects of having one disease on the probability of having another, we used logistic regression models with "dummy" variables for six sex-age subgroups (men and women; 18 to 34 years, 35 to 49 years, 50 to 61 years). For example, we used a logistic regression model to estimate the association between having congestive heart failure (in this case, the "dependent variable") and having chronic obstructive airway disease (the "explanatory variable"). The coefficient on income or on the explanatory disease is the measure of association, and the χ^2 statistic derived from the change in the likelihood ratio with that variable omitted is the measure of statistical significance; values of P less than .05 are taken as significant. Because the regressionn coefficient for disease A in predicting disease B is identical to the coefficient for disease B in predicting disease A, each pair of diseases was analyzed only once.[50]

Results

Sample

Of the 4,962 persons 18 to 61 years of age, just over half were women; more than a third had less than $10,660 and another third had more than $15,950 in family income adjusted for site and family size (mid-1984 dollars). The most common family configuration consisted of two adults 18 years or older and at least one child (47% of families); 18% of families consisted of just two adults.

Prevalence

Prevalence of individual chronic diseases. Hypertension, chronic obstructive airway disease (COAD), chronic mild joint disorders, anemia (among women), hay fever and far vision impairment were the most common chronic conditions in this adult population (Table 2). We observed significantly more joint disorders, anemia, congestive heart failure (CHF), thyroid disease (all $P < .001$) and angina ($P < .01$) among women than men and more COAD and hypertension (both $P < .001$) among men than women. All conditions except anemia and hay fever among women showed the expected positive association with age.

We were particularly interested in learning whether the prevalence of these chronic conditions differed by income group (low versus high income). Because income is confounded with age and sex, we tested whether income was significant in predicting the presence of each disease or impairment in regressions that controlled for age and sex. Across both sexes and all ages, low income was significantly related to the presence of COAD ($P < .05$), anemia and joint disorders (both $P < .01$), CHF, hearing impairment and functional far vision impairment (all $P < .001$). Income had no detectable relationship to the other illnesses studied. All the conditions significantly related to income were more likely to appear among the poor than the well-off.

To focus on the older age group, we show in Table 3 the rates by sex and income for persons aged 45 to 61 years. Except for hypercholesterolemia among men, again any conditions significantly related to income occurred more among the poor.

Severity of chronic conditions. Illness severity among persons whom we classified as having a disorder was generally mild for all conditions assessed by an objective physiologic measure. For example, among persons with hypertension (defined here as those with a measured diastolic blood pressure of greater than 90 mm of mercury), the mean diastolic blood pressure was 97.3 mm of mercury and the mean systolic blood pressure 171.2 mm

TABLE 2.—*Prevalence Rates Per 100 Men and Women of Selected Chronic Conditions by Sex and Age*

	Men			*Women*		
	Age Group, Yr			*Age Group, Yr*		
Chronic Condition or Impairment	*Total 18 to 61*	*18 to 44*	*45 to 61*	*Total 18 to 61*	*18 to 44*	*45 to 61*
Anemia	3.0	2.5	4.4	11.4	11.8	10.4
Angina	0.9	0.3	2.8	1.8	0.7	5.1
COAD*	13.5	12.6	17.0	8.4	8.0	9.5
Congestive heart failure	1.7	0.8	5.0	3.5	2.4	6.8
Diabetes	2.2	1.6	4.1	3.0	1.6	7.1
Hay fever	14.9	16.2	10.5	16.9	17.5	15.2
Hearing impairment	3.6	1.7	10.2	3.5	1.6	9.0
Hypercholesterolemia	5.2	3.7	10.5	4.6	1.6	13.2
Hypertension	16.2	11.1	33.4	11.1	4.3	31.4
Joint disorder	14.7	11.7	24.5	21.3	15.1	39.4
Thyroid disease	0.9	0.6	2.0	3.2	2.1	6.6
Ulcer disease	3.8	3.4	5.1	3.8	3.2	5.7
Vision impairment	16.4	12.9	27.9	22.1	17.2	36.9

COAD = chronic obstructive airway disease of mercury. Among persons classified according to physiologic evidence, the level of severity was also mild for diabetes mellitus (mean glucose level, 247.8 mg per dl), anemia among women (mean hemoglobin level, 10.8 mg per dl) and hypercholesterolemia (mean serum cholesterol level, 290.1 mg per dl).

---

*Persons 18 and 19 years of age are not included

TABLE 3.—*Prevalence Rates of Chronic Conditions Per 100 Persons 45 to 61 Years by Sex and Income Tertile*

	Men		*Women*	
Chronic Condition or Impairment	*Low Income*	*High Income*	*Low Income*	*High Income*
Anemia	13*	2	14	11
Angina	5	2	6	5
COAD	29*	12	11	9
Congestive heart failure	6	3	10*	5
Diabetes	4	4	12*	4
Hay fever	9	10	14	14
Hearing impairment	18*	7	13*	6
Hypercholesterolemia	2	13†	14	10
Hypertension	37	31	38*	27
Joint disorders	22	25	42	37
Thyroid disease	2	2	6	6
Ulcer disease	4	4	5	5
Vision impairment	26	25	44*	28

COAD = chronic obstructive airway disease

*Significantly different from high income at $P < .05$
†Significantly different from low income at $P < .05$

Prevalence of 'chronic illness.' The burden of chronic disease is not limited to the presence of a single condition in any given person. To determine how widespread "multiple" chronic disorders might be, we calculated the percentages in our adult sample with none, one and two or more major chronic conditions. We restricted these analyses to ten conditions, excluding hay fever and vision and hearing impairments, to persons 20 years and older who received the enrollment screening examination and to those with valid data on all ten illnesses. (We adopted this age restriction because we considered the interpretation of spirometry results to be problematic for persons aged 14 to 19 years.) Overall, about 30% of persons 20 to 61 years of age had one chronic illness and an additional 16% had two or more (Table 4). Almost two fifths of the women aged 45 and older had two or more such problems.

Are there clusters of illness, or do illnesses occur independently? Some demographic groups, such as older women, are more likely to have certain of these illnesses, but even allowing for age and sex, certain illnesses may occur together more frequently than would be predicted by chance alone. In fact, the data in Table 4 show somewhat more clustering within the age-sex groups than expected ($P = .04$ based on a summed χ^2test against the four Poisson distributions).

Table 5 shows which of the chronic diseases were significantly correlated (in pairs) after controlling for age and sex. The measure of association shown in the lower triangle of the table is the level of significance of the coefficient of the "explanatory variable" disease (such as COAD) in a logistic regression predicting the probability of

TABLE 4.—*Men and Women With One, Two or More Selected Chronic Conditions by Age**

	Men		*Women*		
Count of Chronic Conditions†	*20 to 44 Yr*	*45 to 61 Yr*	*20 to 44 Yr*	*45 to 61 Yr*	*Total*
Sample, number	892	277	1,039	2,577	
1 chronic condition, percent	27.8	36.8	28.2	32.8	29.6
2 or more conditions, percent	10.5	25.6	11.0	38.2	16.3

*Table includes only those enrollees who underwent the enrollment multiphasic screening examination, completed the medical history questionnaire and had valid data on all ten illnesses.

†Anemia, angina, chronic obstructive airway disease, congestive heart failure, diabetes mellitus, hypertension, hypercholesterolemia, joint disorders, peptic ulcer disease, thyroid disease

TABLE 5.—*Associations Among Pairs of Chronic Conditions After Controlling for Age and Sex**†

	Chronic Conditions									
Chronic Conditions	*Anemia*	*Angina*	*COAD*	*CHF*	*Diabetes Mellitus*	*Hypercholesterolemia*	*Hypertension*	*Joint Disorders*	*Thyroid Disease*	*Ulcer Disease*
Anemia	...	2.4		2.4						
Angina	‡	...	4.9	12.0				3.9		2.9
COAD		‡	...	5.1				2.4		2.6
Congestive heart failure (CHF)	§	‡	‡	...		4.0	2.8	3.6	2.8	3.6
Diabetes mellitus					...	2.6	2.3		3.8	
Hypercholesterolemia				‡	‡	...	2.5			
Hypertension				‡	‡	‡	...			
Joint disorders		‡	‡	‡				...		3.7
Thyroid disease				‡	‡				...	
Ulcer disease		§	§	‡				‡		...

*Each number represents the increased odds of one disease being present when a second disease is present, versus when the second disease is absent, based on a logistic regression that predicts the probability of occurrence of one disease in the presence of another after controlling for age and sex

†Blank spaces mean that there was no significant association betten the two conditions.

‡The association is significant at $P < .001$.

§The association is significant at $P < .05$.

occurrence of a "dependent variable" disease (such as CHF). Congestive heart failure is significantly associated with eight of the nine remaining chronic diseases; by contrast, anemia and thyroid disease are each associated with only two other conditions. One cluster consists of angina, CHF, COAD, joint disorders and ulcer disease; another cluster comprises CHF, high blood pressure, hypercholesterolemia, diabetes and possibly thyroid disorders.

What are the chances that an individual patient might have the second problem in one of these illness pairs if he or she already has the first? The chance of having an illness is usefully expressed in terms of the "odds," $P{:}(1-P)$, where P is the probability of having the illness (as reflected in population prevalence rates). For instance, if the prevalence of a disorder such as angina is 2%, the odds a given patient will have it are 1:49 ($.02/1-.02=.02/.98=1{:}49$). Conversely, the probability corresponding to odds of $x{:}y$ is given by $P=x(x+y)$, so odds of 1:49 have a probability of $1/(49+1)$, or 1/50.

Building on the properties of odds and odds ratios, we show in the upper triangle of Table 5 (for the most highly related pairs) how much more likely people with a certain disease are to have another disease, controlling for age and sex. The values are the *change* in the odds of one disease being present when a second disease is present versus when the second disease is absent. From these numbers, we can estimate the probability that a person with one disorder will have a related condition by multiplying the odds of having only one of the diseases by the value shown in the table.

For example, if the prevalence of CHF in those without angina is 4%, the corresponding odds are $.04/.96=1{:}24$ in this group. The odds are 12 times as great, or 12:24, that a similar person with angina will have CHF; this translates into a probability of CHF in the presence of angina of 33% ($12/[24+12]$). Further, the prevalence of hypertension in the HIE population was roughly 12% and that of diabetes roughtly 3%, giving odds of 12:88 and 3:97, respectively. If the "explanatory condition" is not too common, the prevalence of the "dependent condition" in the absence of the other condition is approximately the overall prevalence. Thus, the odds that a person with diabetes will have hypertension are $2.3*12{:}88$ (about 24% prevalence among diabetic persons), and the odds of a person with hypertension having diabetes are $2.3*3{:}97$ (almost 7% prevalcnce among hypertensive persons). For these "clusters," therefore, the risk of having one chronic disease when a certain other disease is present can be greatly increased even among a general adult population.

Awareness of and Use of Physician Care for Chronic Conditions

Undetected illness. By comparing screening test results with questionnaire information, we would estimate the degree to which people were aware of a particular problem or impairment that we eventually classifed them as having. More detailed analyses reflected a considerable reservoir of undetected illness at the start of the study.[33-48] For instance, about half of the persons with hypercholesterolemia and with diabetes mellitus were unaware of their condition (based on physiologic measure of elevated levels of cholesterol and serum glucose, respectively), as were more than two thirds of persons with anemia (based on abnormally low hemoglobin levels). Finally, even though blood pressure checks are perhaps the easiest (being noninvasive) and most widespread of screening tools, almost three in ten adults apparently had no knowledge of their elevated blood pressures.

TABLE 6.—*Persons With a Specific Condition Who Reported Receiving Physician Care in the Past Year or Within the Past 3 Months*

Chronic Condition or Other illness	*Condition Known to Patient Number*	*Saw Physician Within Previous Year,* Percent*	*Currently Under Care, Percent*
Anemia	140	48	24
Angina	70	46	31
Congestive heart failure	95†	66	41†
Diabetes	39	87	56
Hay fever	664†	27	12†
Hearing impairments	25	31	16
Hypercholesterolemia	62	72	37
Hypertension	220†	79	47†
Joint disorders	707†	39	18†
Thyroid disease	57	68	42
Ulcer disease	139†	42	19†

*All entries in this column are for non-Dayton sites only

†Specified entries in these columns are for non-Dayton sites only.

Use of physician care. For persons whom we classified as having a definite condition and who themselves claimed on the questionnaire to have the illness, we calculated the percentages of those who reported receiving medical care for that condition. Percentages of people with care in the previous year or currently under physician care (mainly within the previous three months) are given in Table 6.

Two thirds or more of the people classified as having CHF, diabetes, hypercholesterolemia, hypertension and thyroid disease had seen a physician for that specific problem within the previous year. Not surprisingly, patients with those same conditions had the highest percentages for being under current care. Less than a third of the relevant patient group had sought care in the preceding year for hay fever or hearing disorders. Less than a quarter of persons with anemia or peptic ulcer disease was under current care for those disorders and only about a tenth of those with hearing impairment had seen a physician recently for that problem.

Levels of reported compliance with physician prescriptions and therapeutic advice. Compliance with physician advice about therapy or self-care activities is an important element of management. We asked our sample about medications or other kinds of curative or preventive activities that their physicians might have recommended or prescribed and about the degree to which they followed their doctors' advice. Therapies and preventive measures can also be self-initiated, so in some cases we asked about the use of certain remedies or activites with or without a physician's advice.*

Physicians evidently advised the use of medications to manage hypertension and ulcer disease quite frequently (see column 2 of Table 7). Counseling for self-care activities among patients with diabetes was also commonly provided.

Compliance, reflected by the percentage of persons who said they currently used prescribed therapies, was in general high (see column 3 of Table 7), although in some cases this conclusion is based on a small number of people. Reported levels of compliance were higher for patients with diabetes, for those who had had iron or vitamin supplements (or both) prescribed for anemia and for patients who had had medications prescribed for hay fever, hypertension and hypercholesterolemia.

The last column of Table 7 shows the extent of reported use of these therapies among the entire group of persons who had one of these conditions, whether or not they had been so advised. For most conditions, the percentage of people using a therapy on professional advice was larger than those using it in the absence of such advice. Although this is not surprising in the case of, say, medications for an elevated cholesterol level or high blood pressure, both of which require a physician's direct action, it is perhaps surprising for conditions such as hay fever.

Summary. Medical care for patients with chronic illness can be thought of as moving from a tree trunk to a twig, where the number of persons diagnosed as having a condition is reduced as one moves to branches concerning whether they are aware of their problem and, then, whether they seek care, obtain therapy and follow such therapeutic regimens. Following persons with hypertension illustrates this concept. About 70% of our hypertensive population knew about their high blood pressure; of this "aware" group, about 80% had sought care in the prior year and almost 50% had seen a physician in the preceding three months. Moreover, of the patients who knew they had hypertension, about 80% had been advised to take medications; of them, more than 90% complied. Thus, of the original group we classied as having elevated blood pressures, about a third had had recent care for their hypertension and about half were taking prescribed medications.

TABLE 7.—*Extent of Use of Medications, Therapies or Self-Care Activities Among Persons Reporting a Chronic Illness*

Condition and Therapy	*1* *Condition Known to Patient,* Number	*2* *Patients Who Were Advised to Use Specific Therapy,* Percent	*3* *Patients Who Followed Advice* Percent	*4* *Patients in Column 1 Who Used Specific Therapy Whether or Not Advised,* Percent
Anemia	140			
Diet		6	44	6
Iron pills/shots		56	86	77
Vitamins		18	92	31
Blood Transfusions		4	33	2
Congestive heart failure	95*			
Diuretics		40	79	32
Diabetes mellitus	39			
Keep feet clean		64	100	95
Cut toenails straight		62	88	77
Not walk barefoot		56	73	56
Not wear tight hose		59	91	67
Watch weight		85	79	70
Hay fever	738			
Medications		31	87	33
Hypercholesterolemia	62			
Medications		27	71	21
Diet		NA†	NA	50
Hypertension	273			
Medications		81	91	74
Use less salt		51	49‡	20
Thyroid disease	57			
Surgical procedure		18	NA	68
Irradiation		12	NA	NA
Ulcer Disease	139*			
Medications		75	NA	NA

*Non-Dayton sites only.

†NA = Relevant question not asked.

‡In all, 49% reported never adding salt to food at the table; 10% reported never adding salt at the table *and* never adding or having salt added to their cooking.

---

*We did not ask directly pertinent questions for hearing impairment or vision impairment; the therapy questions for COAD refer mainly to people with symptoms of chronic bronchitis, not emphysema or chronic obstructive pulmonary disease. Medications are omitted from the thyroid disease and diabetes groups because the use of disease-specific drugs, such as insulin for diabetes, was important in defining the presence of those diseases.

Levels of Disease Impact

We wanted a wide range of "outcome" measures for longitudinal analyses in the study. Some came directly from the physiologic measure characteristic of the illness—that is, blood pressure in hypertension—but we did not have analogous physiologic measures for every condition studied. To overcome this lack, we asked several standard "disease impact" questions of all persons who had, or believed they had, these various illnesses. We then calculated the percentages of persons who reported they had been worried or concerned about their illness in the recent past or who had had to restrict daily activites at least "a little of the time" specifically because of the disorder. All persons classified as having a condition were analyzed. For respondents who were unaware of having an illness and who thus would not have been asked the disease impact questions, we imputed an answer of "none."

Nearly every one of the ten major chronic conditions occasioned a good deal of mental distress (Table 8). Problems associated with symptoms such as pain (ulcer disease, joint disorders, angina) or shortness of breath (congestive heart failure) prompted more worry and concern than did "symptomless" disorders (such as the mild anemia or hypercholesterolemia seen in our population). Worry about these illnesses was quite extensive but mild. Among persons reporting any worry or concern, the median level was only "a little" except for CHF and diabetes, for which the median level was "some" worry.

Generally, people were less likely to restrict their activities because of these chronic conditions (see Table 8) than they were to express worry and concern. The same four diseases that ranked high for causing worry and concern also ranked high for limiting ordinary activities: CHF, chronic joint disorders, peptic ulcer disease and angina. For almost half of all the chronic disorders (CHF, angina hypercholesterolemia, hearing loss and diabetes), the median period of activity restriction among those persons who reported any was "some of the time."

TABLE 8.—*Adults Reporting Worry and Concern or Restricted Activity, by Chronic Condition*

Chronic Condition	*Persons with Condition,* Number*	*Reported Worry or Concern Percent*	*Reported Activity Restriction Percent*
Anemia	215	22	9
Angina	70	76	46
COAD	298	50	13
Congestive heart failure	131	86	71
Diabetes mellitus	74	31	16
Hay fever	738	59	26
Hearing impairment	101	6	10
Hypercholesterolemia	148	14	7
Hypertension	384	38	12
Joint disorders	903	77	41
Thyroid disease	62	19	3
Ulcer disease	190	86	45
Vision impairment	560	47	15

CPAD=chronic obstructive airway disease

---

*Sample includes all persons whom we eventually classified as having the disease Those who said they did not have the condition—even though we had so classified them on the basis of other data—and who thus did not answer the question are included in the denominator and considered to have repsonded "no" to these questions.

Discussion

We have reported on 13 conditions that are of major concern to those primary care physicians whose patient population consists mainly of adults. We found that in a general adult population up to late middle age, a considerable portion of its members are afflicted with one or more chronic conditions—some serious and some not so serious—that impinge negatively on their lives. For example, prevalence rates ranged from about 19% for mild joint disorders to almost 2% for angina pectoris. Strong associations with age were detected for most chronic conditions.

Chronic illness occurred somewhat more frequently among poorer adults after controlling for age; this was especially true of hearing and vision defects, anemia, COAD, CHF and joint disorders. We cannot tell whether low income is a cause or a result of these problems, but both explanations are plausible.

About 16% of our adult sample had two or more (of ten) chronic conditions. In addition, we found that the "relative odds" of several chronic illnesses conditional on having another were very high, even when we controlled for age and sex. Some of these associations were expected (the strong connection between CHF and angina); others, such as joint disorders and ulcer disese, may be less commonly observed in ordinary medical practice but may warrant further investigation. Undetected illness was appreciable for some of the conditions we studied.

Few, if any, published data are available on the average amount of care sought by people with the chronic conditions we studied. Thus, although the medical profession may well have "norms" or expectations about the desirable frequency of physician visits for persons with, say, elevated cholesterol levels or vision impairments, we know little about whether the average patient observes those norms. In 1975 about three quarters of the US population aged 15 to 64 years had visited a physician at least once in the preceding year.[51] By that benchmark, the rate of care-seeking in the year before the study began specifically for chronic conditions that our participants knew they had seems rather low; it was by no means excessive. Of course, our respondents could have visited a physician for other problems; whether this was so and whether the specific chronic condition might have been indirectly evaluated at such visits would not be reported in the disease-specific questionnaires.

Only for diabetes, hypertension and hypercholesterolemia did the percentage of people who saw a physician in the previous year approach the benchmark cited above. Patients with some conditions, such as chronic joint problems, angina or peptic ulcer disease, arguably ought to have at least annual follow-up; our reported rates of care-seeking for these disorders fell considerably below this standard, especially if biases related to underreporting and overreporting of medical care utilization were to be taken into account.[52] These crude "diagnosis-specific visit rates" are consistent with the view that physician care for these conditions was not being oversupplied.

The degree to which patients followed their physician's advice and counsel was high but not obviously related to the seriousness of the condition. an appreciable proportion of persons who had (and knew they had) diabetes, hypertension and hypercholesterolemia reported that they followed their physicians' recommendations, but so did those with hay fever. We did not verify the accuracy of these compliance self-reports; some respondents may well have overstated their adherence to a given medical regimen. Compliance with drug regimens for acute or chronic conditions is not easy to measure in large population surveys[53] and may well differ by the type of drug; one account puts overall drug compliance among persons with hypertension at just under 60%.[54] Nonetheless, we interpret our figures as reflecting an impressive degree of adherence to professional advice, at least about remedies or self-care activities that patients comprehend are directly related to their illnesses.

Our simple measures of the impact of specific disease on people's lives suggest that anxiety about specific chronic illnesses is widespread but mild. Whether this implies that Americans are oversensitive about their health or that they are showing a growing sophistication about health may be largely a matter of individual interpretation. Persons with angina, CHF, joint disorders and ulcer disease tended to report more disease impact (worry and concern and activity limitations) than those with the other conditions studied.

In summary, dealing effectively with chronic disease requires a multifaceted approach. Most chronic disease in a general population is mild, but a considerable amount is undiagnosed. Efforts must be made to ensure that those who need regular care receive it, especially when the burden of chronic disease falls disproportionately on persons of low income. Finally, even mild chronic illness imparts considerable anxiety about one's health. Effective care requires physicians to cope with this aspect of chronic disease even as they attempt to control its physiologic manifestations.

REFERENCES

1. National Center for Health Statistics (NCHS): Characteristics of Persons With Diabetes – United States, Jul 1964-Jun 1965, Public Health Series publication No 1000 Series 10 No 40. Government Printing Office, 1967.
2. NCHS: Prevalence of Selected Chronic Respiratory Conditions – United States, 1970, Dept of Health, Education, and Welfare (DHEW) publication No (HRA) 74-1511 Series 10 No 84. Rockville MD, Health Resources Administration, 1973.
3. NCHS: Prevalence of Selected Impairments – United States, 1971, DHEW publication No (HRA) 75-1526 Series 10 No 99. Rockville Md, Health Resources Administration, 1975.
4. NCHS: Persons with Impaired Hearing – United States, 1971, DHEW publication No (HRA) 76-1528 Series 10 No 101. Rockville Md, Health Resources Administration, 1975.
5. NCHS: Prevalence of Chronic Conditions of the Genitourinary, Nervous, Endocrine, Metabolic, and Blood and Blood-forming Systems and of Other Selected Chronic Conditions – United States, 1973, DHEW publication No (HRA) 77-1536 Series 10 No 109. Rockville Md, Health Resources Administration, 1977b.
6. NCHS: Prevalence of Selected Chronic Digestive Conditions – United States, 1975, DHEW publication No (HRA) 79-1558 Series 10 No 123, Hyattsville Md, Public Health Service, 1979.
7. NCHS: Prevalence of Chronic Skin and Musculoskeletal Conditions – United States, 1976, DHEW publication No (PHS) 79-1552 Series 10 No 124, Hyattsville Md, Public Health Service, 1978.
8. NCHS: Refraction Status and Motility Defects of Persons 4-74 Years – United States, 1971-1972, DHEW publication No (HRA) 78-1654 Series 11 No 206, Hyattsville Md, Health Resources Administration, 1978.
9. NCHS: Basic Data on Arthritis – Knee, Hip, and Sacroiliac Joints in Adults Ages 25-74 Years – United States, 1971-1975, DHEW publication No (PHS) 79-1661 Series 11 No 213, Hyattsville Md, Public Health Service, 1979.
10. NCHS: Serum Cholesterol Levels of Persons 4-74 Years of Age by Socioeconomic Characteristics, DHEW publication No (PHS) 80-1667 Series 11 No 217, Hyattsville Md, Public Health Service, 1980.
11. NCHS: Hypertension – United States, 1974 – Advance Data from Vital and Health Statistics, DHEW publication No (HRA) 77-1250 No 2. Rockville Md, Health Resources Administration, 1976.
12. NCS: Hemoglobin and Selected Iron-related Findings of Persons 1-74 Years of Age – United States, 1971-74 – Advance Data from Vital and Health Statistics, DHEW publication No (HRA) 79-1250 No 46. Rockville Md, Health Resources Administration, 1979.
13. Manton KG, Korbin L: Projecting chronic disease prevalence. Med Care, 1984, 22:511-526.
14. Abramson JH, Gofin J, Peritz E, et al: Clustering of chronic disorders – A community study of coprevalence in Jerusalem. J Chronic Dis 1982, 35:221-230.
15. Manton KG, Stallard E: Mortality of the chronically impaired. Demography 1980, 17:189-206.
16. NCHS: Limitation of Activity Due to Chronic Conditions – United States, 1974, DHEW publication No (HRA) 77-1537 Series 10 No 111. Rockville Md, Health Resources Administration, 1977.
17. NCHS: Current Estimates from the National Health Interview Survey – United States, 1981, Dept of Health and Human Services (DHHS) publication No 82-1569 Series 10 No 141, Hyattsville Md, DHHS, 1982.
18. Bracht NF: The social nature of chronic disase and disabiity. Soc Work Health Care 1979, 5:129-144.
19. NCHS: Health Characteristics of Persons with Chronic Activity Limitation: United States, 1979, DHHS publication No (PHS) 82-1565 Series 10 No 137, Hyattsville Md, Public Health Service, 1981.
20. Cluff LE: Chronic disease, function, and the quality of care. J Chronic Dis 1981, 34:299-304.
21. Altman SH, Blendon R (Eds): Medical Technology: The Culprit Behind Health Care Costs? DHEW publication No (PHS) 79-3216. Government Printing Office, 1979.
22. Somers AM: Health Care in Transition: Directions for the Future. Chicago, Ill, Hospital Research and Educational Trust, 1971.
23. Rice DP, Hodgson TA: Scope and impact of chronic disease in the United States, In: National Arthritis Advisory Board: Public Policy and Chronic Disease – A Forum, National Institutes of Health publication No 79-1896, Bethesda Md, National Arthritis Advisory Board, May 1979.
24. Luft H: Poverty and Health: Economic Causes and Consequences of Health Problems, Cambridge Mass, Ballinger, 1978.
25. Cooper BS, Rice DP: The economic cost of illness revisited. Soc Sec Bull 1976, 39:21-36.
26. Hartunian NS, Smart CN, Thompson MS: The incidence and economic costs of cancer, motor vehicle injuries, coronary heart disease, and stroke: A comparative analysis. Am J Public Health 1980, 70:1249-1260.

27. Meenan RF, Yelin EH, Nevitt M, et al: The impact of chronic disease—A sociomedical profile of rheumatoid arthritis, Arthritis Rheum 1984, 24:544-549.

28. Yelin EH, Feshbach DM, Meenan RF, et al: Social problems, services and policy for persons with chronic disease—The case of rheumatoid arthritis. Soc Sci Med 1979, 13C:13-20.

29. Newhouse JP, Manning WG, Morris CN, et al: Some interim results from a controlled trial of cost sharing in health insurance. N Engl J Med 1981, 305:1501-1507 (Also available as R-2847-HHS, Santa Monica Calif, The Rand Corp, 1982.)

30. Brook RH, Ware JE Jr, Rogers WH, et al: Does free care improve adults' health? Results from a randomized controlled trial. N Engl J Med 1983, 309:1426-1434.

31. World Health Organization: Constitution of the World Health Organization, In: Basic Documents. Geneva WHO, 1948.

32. Brook RH, Ware JE Jr, Rogers WH, et al: The Effect of Coinsurance on the Health of Adults—Results from the Rand Health Insurance Experiment, R-3055-HHS, Santa Monica Calif, The Rand Corp, 1984.

33. Brook RH, Lohr KN, Goldberg GA, et al: Conceptualization and Measurement of Physiologic Health for Adults—Acne, R-2262/2-1-HHS, Santa Monica Calif, The Rand Corp, 1980.

34. Brook RH, Berman DM, Lohr KN, et al: Conceptualization and Measurement of Physiologic Health for Adults—Hypertension, R-2262/3-HHS, Santa Monica Calif, The Rand Corp, 1980.

35. Berman DM, Brook RH, Lohr KN, et al: Conceptualization and Measurement of Physiologic Health for Adults—Angina Pectoris, R-2262/4-HHS, Santa Monica Calif, The Rand Corp, 1981.

36. Rosenthal M, Lohr KN, Rubenstein RS, et al: Conceptualization and Measurement of Physiologic Health for Adults—Congestive Heart Failure, R-2262/5-HHS, Santa Monica Calif, The Rand Corp, 1982.

37. Scott B, Goldberg GA, Brook RH, et al: Conceptualization and Measurement of Physiologic Health for Adults—Anemia, R-2262/6-HHS, Santa Monica Calif, The Rand Corp, 1980.

38. Brook RH, Lohr KN, Berman DM, et al: Conceptualization and Measurement of Physiologic Health for Adults—Diabetes Mellitus, R-2262/7-HHS, Santa Monica Calif, The Rand Corp, 1981.

39. Foxman B, Lohr KN, Brook RH, et al: Conceptualization and Measurement of Physiologic Health for Adults—Chronic Obstructive Airway Disease, R-2262/8-HHS, Santa Monica Calif, The Rand Corp, 1982.

40. Brook RH, Lohr KN, Goldberg GA: Conceptualization and Measurement of Physiologic Health for Adults—Thyroid Disease, R-2262/9-HHS, Santa Monica Calif, The Rand Corp, 1982.

41. Scott B, Brook RH, Lohr KN, et al: Conceptualization and Measurement of Physiologic Health for Adults—Joint Disorders, R-2262/10-HHS, Santa Monica Calif, The Rand Corp, 1982.

42. Brook RH, Lohr KN, Keeler EB, et al: Conceptualization and Measurement of Physiologic Health for Adults—Hypercholesterolemia, R-2262/11-HHS, Santa Monica Calif, The Rand Corp, 1981.

43. Rubenstein, RS, Lohr KN, Brook RH, et al: Conceptualization and Measurement of Physiologic Health for Adults—Vision Impairments, R-2262/12-HHS, Santa Monica Calif, The Rand Corp, 1982.

44. Beck S, Brook RH, Lohr KN, et al: Conceptualization and Measurement of Physiologic Health for Adults—Hay Fever, R-2262/13-HHS, Santa Monica Calif, The Rand Corp, 1981.

45. Beck S, Brook RH, Lohr KN, et al: Conceptualization and Measurement of Physiologic Health for Adults—Hearing Loss, R-2262/14-HHS, Santa Monica Calif, The Rand Corp, 1981.

46. Rubenstein RS, Beck S, Lohr KN, et al: Conceptualization and Measurement of Physiologic Health for Adults—Surgical Conditions, R-2262/15-HHS, Santa Monica Calif, The Rand Corp, 1983.

47. Zielske JV, Lohr KN, Brook RH, et al: Conceptualization and Measurement of Physiologic Health for Adults—Urinary Tract Infection, R-2262/16-HHS, Santa Monica Calif, The Rand Corp, 1981.

48. Zielske JV, Lohr KN, Goldberg GA, et al: Conceptualization and Measurement of Physiologic Health for Adults—Peptic Ulcer Disease, R-2262/10-HHS, Santa Monica Calif, The Rand Corp, 1982.

49. Rogers W, Camp P: Refusal and Attrition in the Health Insurance Experiment, R-2195-HHS, Santa Monica Calif, The Rand Corp, in press.

50. Breslow N, Powers W: Are there two logistic regressions for retrospective studies? Biostatistics 1978, 34:100-105.

51. NCHS: Physician Visits: Volume and Interval Since Last Visit, United States, 1980, DHHS publication No (PHS) 83-1572 Series 10 No 144, Government Printing Office, 1983.

52. Cleary PD, Jette AM: The validity of self-reported physician utilization measures. Med Care 1984, 22:796-803.

53. Cummings KM, Kirscht JP, Becker MH, et al: Construct validity comparisons of three methods for measuring patient compliance. Health Serv Res 1984, 19:103-116.

54. Inui TS, Carter WB, Pecoraro RE, et al: Variations in patient compliance with common long-term drugs. Med Care 1980, 18:986-993.

Dementia

AMA COUNCIL ON SCIENTIFIC AFFAIRS

Dementia has emerged as a national health concern. The demographics of our aging population suggest that this concern can only become more acute. For families that have a member with a primary dementing illness, this concern often becomes an all-consuming one. At present, our understanding of the primary dementias, especially Alzheimer's disease, is incomplete, and thus, most cases of primary dementia progress irreversibly. Nevertheless, there is much in the way of treatment, care, and support that can be provided by the practicing medical community to sustain the viability and vitality of patient and family.

Dementia constitutes a major challenge to the American medical community. Optimal care for the demented patient and maximal support for the patient's family require that the physician and others providing such care and support understand a broad spectrum of medical, scientific, and psychosocial issues. The purpose of this report is to examine these issues and to elucidate medicine's role in diminishing the adverse impact of dementia on the quality of life of patient, family, and friends.

Due to rapid advances in knowledge in geriatric medicine, this report should not be construed as a definitive analysis of the problem of dementia. Rather, it should be considered an informational report written at one time point on a continuum of advancement in the understanding of the process of normal and pathological aging.

Within this framework, this report will (1) define the nature and scope of this national health concern, (2) highlight crucial features of the process of diagnosis and evaluation of patients suspected to have a dementing disorder, (3) discuss long-term goals for both the care of the patient and support of the family, (4) outline therapeutic interventions to manage the patient's presenting symptomatology, (5) identify important issues in research and training.

Definition of Dementia

Dementia is a global impairment of cognitive function that usually is progressive and that interferes with normal social and occupational activities. The core cognitive impairment in moderate to severe dementia is characterized by deficits in memory and/or impaired directed or abstracted thinking, judgment, and intellectual performance. Onset of the primary dementias usually is gradual (months to years), orientation often is compromised, yet consciousness does not become clouded until the terminal stages. Paranoid ideas and delusions may be present. Such changes in cognitive function are distinct from those attributable to the normal aging process and are determined by a history of decline in clinical examination and by neuropsychological testing.

Dementia defines a clinical state that includes numerous specific diagnoses subclassified as either primary or secondary. The primary dementias (eg, Alzheimer's disease) are the most common. Secondary dementias are less common manifestations of conditions that often present with a different clinical picture (eg, brain tumors and fungal meningitis). Many of these latter dementias are differentiated from the primary type by their reversibility when the underlying causes are treated appropriately. Exceptions to reversible secondary dementias exist and include dialysis dementia and postanoxic and postencephalitic dementias.

Other disorders are characterized by some of the features of memory and cognitive dysfunction of the dementias. Such disorders include delirium, lethargy, mental retardation, schizophrenic thought disorder, depression, aphasia, apraxia, and agnosia. Dementia usually can be distinguished from these other disorders by three of the aforementioned features: gradual deterioration from a previously better level of function, global impairment of cognitive function, and preservation of alertness or unclouded consciousness.

From the Council on Scientific Affairs, American Medical Association, Chicago.

This is an informational report, presented to the House of Delegates of the American Medical Association at the Annual Meeting, June 1986.

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all of the facts and circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and patterns of practice evolve. This report reflects the views of the scientific literature as of June 1986.

Reprint requests to Council on Scientific Affairs, American Medical Association, 535 N Dearborn St, Chicago, IL 60610 (William R. Hendee, PhD).

Overview: Impact of Dementia

Dementia was not a major public health concern prior to the 20th century because few people lived beyond the age of 75 years and dementia is largely a problem associated with advanced age. Today more than 50% of the entire US population reaches age 75 years, and 25% live to be 85 years. In 1950, about 12.3 million US citizens were older than 65 years. This number increased to over 22 million in 1978. The US Census Bureau estimates that by the year 2000 there will be 35 million persons older than 65 years and that by the year 2050 this number will rise to 67 million.[1]

The prevalence of severe dementia in the population older than 65 years ranges from 1.3% to 6.2%, while the prevalence of mild dementia has been reported to range from 2.6% to 15.4%. This large variation in prevalence is probably due, in part, to methodological differences among studies from which these figures were taken.[2,3]

Most patients suffering from a dementing illness have Alzheimer's disease (50% to 75%). Alzheimer's disease is quite rare below age 60 years, but there is a striking increase in incidence in those 80 years or older. In patients aged 80 years or older, the average annual incidence rate has been reported to be approximately 4%. At age 80 years the prevalence of this disorder is about 20%.[3-7]

It is not clear if mortality in those with Alzheimer's disease is increased compared with that of the general population. It has been suggested that there is a shorter life expectancy for Alzheimer's patients beginning three years after the onset of the disease. However, it is unknown whether shorter life expectancy in Alzheimer's patients is due to the disease process itself or to the poor self-care associated with impaired intellectual functioning. More research in this area is needed.

The estimated cost of caring for chronically demented individuals runs into the billions of dollars. These figures and the aforementioned trends in our aging population portend dramatic increases in the toll to be exacted from our nation's human and monetary resources. More importantly, they highlight the need for the medical community to care actively for the individual with dementia and to improve continuously its capacity to do so.

While the economic impact of dementia is great, the impact of dementia on the quality and way of life of a patient and family can be devastating. Family members are confronted by the prospect of witnessing the gradual deterioration of a loved one's intellect, memories, and personal relationships. They may be confronted by confusing terminology, uncertain explanations of etiology, and the unavailability of definitive treatments. Their view of the future may become bleak as they assume the difficult responsibility of providing ever more intense levels of care for their loved one. Decisions about care for the patient become increasingly interwoven with concern for the family's well-being. Accordingly, an active orientation of the medical community with respect to treatment, care, and support will serve best to sustain the viability and vitality of both patient and family.

Diagnosis of Dementia

The diagosis of the specific disorder underlying dementia can constitute a formidable challenge, but in most situations a high degree of suspicion and the application of basic clinical skills will lead to the proper diagnosis. The recognition of the causative disorder of dementia in young individuals and in those suffering from systemic illnesses usually presents little problem. In the older population, however, dementia develops insidiously as the result of primary brain disease, systemic diseases, psychiatric disorders, or reaction to drug therapy and often is not recognized sufficiently early.

Failure of mental functions in the older patient is dismissed all too frequently as simply being due to old age. Contrary to what many believe, the terms "senescence" and "dementia" are not synonymous. In old age, mental processes do become slowed, but the older healthy person retains a firm grasp on reality, is oriented, can reason, has good judgment, and can continue to lead an active and self-sufficient life. Most aged individuals will exhibit a decrease in endurance and in ability to attain peak performance in purely physical tasks. Likewise, aged individuals will show a decrease in endurance and speed of performance of mental tasks. Already learned material is well retained, but learning of new information becomes somewhat difficult and takes longer. Vocabulary remains well preserved. The primary senses become less sharp but usually remain adequate. Gait becomes more deliberate and general balance and stability may be impaired.

Elderly patients increasingly are seeking help initially because of diminishing mental functions. However, the most common early complaints of patients are diminished energy and enthusiasm, loss of interest in subjects previously cherished, lability of mood, and increased anxiety. Such nonspecific complaints should suggest the possibility of a dementing illness. The initial evaluation of such complaints should include a full medical history (including a drug history) derived from the patient and other informants, a general medical examination focusing especially on neurologic functions, and a mental status examination focusing on orientation, memory, ability to recall and retain new information, ability to calculate, and the patient's emotional state.

In a person in whom an evaluation suggests a possible or definite diagnosis of dementia, further evaluation is necessary to identify the disorder as Alzheimer's disease or a dementia secondary to a potentially reversible disease. The primary diagnostic criteria for Alzheimer's disease include an established dementia with progressive deterioration of specific cognitive functions such as language, motor skills, and perception in the absence of causal underlying disease. These criteria have been reviewed in detail elsewhere.[8-10] The differential diagnosis of multi-infarct dementia, a secondary dementia that is often more abrupt in onset than Alzheimer's and that progresses incrementally rather than gradually, can be facilitated by the use of the Hachinski Brain Ischemia

Scale.[11] The importance of searching for potentially reversible secondary dementias (eg, depression, thyroid dysfunction, vitamin B_{12} deficiency, substance misuse or abuse, and infections) whose manifestations mimic primary dementias cannot be overstated. Differential diagnosis of these secondary dementias is crucial because some such conditions are amenable to treatment and, in many cases, their ill effects can be reversed completely.

Laboratory testing can be designed to facilitate identification of the specific underlying disorder of dementia. Such an evaluation should include blood cell count; determination of electrolyte, serum glucose, serum urea nitrogen, and creatinine values; liver function tests; thyroid function tests; serological test for syphilis; toxicology screen; determination of B_{12} and folate concentrations and sedimentation rate; urinalysis; chest roentgenogram; and electrocardiogram. Even if results of the toxicology screen are negative, it is often helpful to obtain blood concentrations of all medications the patient is taking. Many drugs, either by themselves or in combination with others, may produce a dementialike picture. If no abnormalities are found or if abnormalities do not readily explain the patient's dementia, an electroencephalogram and/or a computed tomographic scan may be necessary. Some physicians prefer to do a lumbar puncture only if a chronic intracranial infection is suspected. Others routinely do a lumbar puncture because the procedure can yield information that helps to establish the correct diagnosis.

It may not appear cost-effective to subject every patient who presents with cognitive impairment to such an evaluation because no more than 10% to 20% will have treatable causes. While not all patients with dementia are admitted to a nursing home, many are and stay for several years. Identification of the 10% and 20% with reversible dementia and subsequent successful treatment of them can result in a substantial net cost savings for these cases.

Although the clinical diagnosis of nonreversible dementia can be established with a high degree of certainty during life, the histologic diagnosis cannot be determined before death. Therefore, autopsy is recommended where possible for demented patients to provide valuable information to the physician and family.

In summary, a high degree of suspicion coupled with a rational diagnostic approach will allow proper identification and classification of most, if not all, demented patients at a reasonable cost.

Long-Term Care Goals and Requirements

Most discussions of dementia in the medical literature have, in the past, ended at this point, that is, after discussion of the differential diagnosis. It has become increasingly evident in the past few years that the medical community must become more involved in the long-term care of the dementia patient.

The long-term management of irreversible dementia differs in several respects from that of other chronic irreversible illnesses. In devising a framework for optimizing long-term care of patients with primary dementia, several principles of the disease and its sociology must be recognized.

1. The duration of the disease is long and the point at which total disability often occurs is late in the course of the illness. For most of the illness, the patient is ambulatory and able to perform some of the activities of usual daily living. Furthermore, the patient is able to experience and express emotions.

2. Most families of demented patients are determined to care for the patient for as long as possible.

3. In most other illnesses, the focus of psychological intervention is the patient's response to the illness. In dementia, suffering occurs to a similar degree in the patient, caregiver, and other family members, so that emotional support systems must be available to them all.

4. Social milieu is a prime consideration in the management of patients with dementia because they have limited ability to adjust to change. A demented patient is much more likely to retain functional effectiveness in a familiar and stable environment.

Given these principles, management of the demented patient in the noninstitutionalized setting such as the home should be the first priority in planning long-term care. Before a decision for home management of a demented individual can be endorsed, however, it must be clear that the primary caregiver is competent and willing to provide care. The caregiver's health, emotional state, and coping skills should be objectively assessed. Caregivers with severe deficiencies in any one of these areas should be encouraged to consider alternatives to home management.

At some point in the disease process, home care of the demented patient may be beyond the capabilities and best interests of the caregiver. If the disease has progressed to involve immobility and regular incontinence, then the skills and coping mechanisms of the caregiver must be commensurately higher. The caregiver's health and expertise must be adequate for the patient's given level of dysfunction. The skills of the caregiver and the home environment of the patient should be periodically reviewed to ensure optimal care. While strongly endorsing home care, the health professional must convey to the caregiver that institutionalization is available and is a preferred option under some circumstances.

Adequate support for the primary caregiver is an important requirement for successful home care. The caregiver should be educated as to the nature of the dementing illness, its natural history, the characteristics of the disease as it progresses, and the implications of the diagnosis for the caregiver. Appropriate and adequate primary care and continued medical supervision should be available. Affordable day care facilities, respite care facilities, and home health aid services are important, as is access to support groups such as the Alzheimer's Disease and Related Disorders Association. Expertise in the behavioral and pharmacological management of necessary daily activities or disruptive behaviors should be available.

Support of this kind requires the use of a health care team that has expertise in dementia and that can be available to a wide geographic area. Dementing illness is a multifaceted process and its treatment requires knowledge in diverse areas, out of the realm of any one physician. Thus, a multidisciplinary team is helpful and is best based at a tertiary referral center. The two-day cooperation of the primary physician in the patient's community and the team at a dementia center must be stressed. For the primary physician, this requires a level of knowledge in neurologic/psychiatric disease that allows him or her to make accurate assessments of the patient's condition. For the dementia center, there must be a willingness to communicate with the primary physician and to share information on a regular basis. The health care team that will serve as partner with the primary care physician in the management of the demented patient should include a neurologist, a psychiatrist, a social worker, a nurse clinician, and a psychologist.

Society must recognize that home management of the demented patient requires financial backing. A means of supporting provision of care in the home must be available to provide the incentive to continue home management when additional in-home services are required.

When home management becomes impractical, institutionalization becomes the sole option. For the demented patient in a nursing home, requirements similar to those of home management must be met (ie, education of staff, optimal structure of the physical environment, availability of physicians, adequate staffing, etc). The level of expertise will of necessity be higher, since the magnitude of the nursing problems will be greater. The cost of nursing home care is substantial. Strong efforts are required to convince society that adequate funds for nursing home care should be made available to patients with a dementing disorder.

Most patients with dementia eventually become legally incompetent to make decisions. For some patients it is desirable to establish formal guardianships or conservatorships. For others, who may be incompetent but not so adjudicated, a framework should be established that guarantees that they are protected.

Management of Specific Symptomatology

The uncertain etiology of primary degenerative dementia of the Alzheimer type has precluded the development of a specific therapeutic intervention aimed at preventing or halting the progress of the disease. Thus, treatment regimens focus on the amelioration of the disorder's symptomatology and on the elimination of contributing factors rather than on the disease process itself.

Improvements in level of functioning and reduction of disruptive behavior can be achieved through drug as well as nondrug interventions. Many believe that through these approaches patients may be maintained longer in their own homes with less stress on caregivers.

Maintenance of Physical Health

The primary care physician plays a vital role in maintaining the patient's physical health. Even minor intercurrent illnesses and routine medications can worsen intellectual function.

The patient's inability to communicate may prevent the reporting of injuries resulting from falls, burns, pressure, or minor illness. For example, significant dental and foot problems can be overlooked. Systematic review of patient status can uncover conditions in need of medical attention.

Environmental Support

The environment can be structured to provide opportunities for the patient's experience of pleasure and affection and to reduce patient alarm, depression, and embarrassment. Family members may need to be told that when the patient is intellectually incapable of making adjustments, it is necessary to adjust the patient's environment. This includes the following:

1. Creation of a stable, dependable setting with regular schedules and in which the patient's possessions are kept in familiar places. Patients often show some capacity to learn expected routines.

2. Minimization of confusion around the patient. Multiple activities, conversations, requests, or distractions can agitate these patients. An easy guideline for families is to provide as much environmental stimulation as the patient can tolerate but to reduce numbers of visitors, turn off televisions, etc, when the patient begins to fidget or appears tense.

3. Provision of and enhancement of multiple sensory cues. Hearing aid batteries must be maintained by others, the patient should wear his or her glasses and dentures (even in the hospital when possible), lighting levels should be increased and night-lights used, and clocks should be available for those who can still use them.

4. Regular reassessment of patient safety through review of the capacity for independent function, including the patient's ability to cook, smoke, or remain alone safely.

5. Provision of simple one-step units of information that are reassuring and give positive information (complex sentences and negative commands—"Don't do that"—confuse the patient).

6. Use of distraction as a response to perseveration and undesirable behaviors. Motor distraction is often more effective than verbal requests. For example, if a patient has gripped a caregiver's hair, asking the patient to hold something is more effective than telling him or her to stop.

7. Frequent readjustment of tasks to fit the patient's level of function. The inability to perform a previously easy task is a frequent cause of catastrophic reactions. Here also, families can be guided to give the patient as much independence as he or she can tolerate without restlessness or irritability.

8. Scheduling of demanding tasks for the patient's best time of day.

Pharmacologic Management

Although specific pharmacologic treatment for the disease process is lacking, symptomatology such as anxiety, insomnia, depression, and disruptive and debilitating behavior is amenable to treatment with drugs commonly used for these manifestations.

The benzodiazepines can be useful when anxiety is a primary problem. Other drugs are more appropriate when anxiety is secondary to depression or to psychotic symptoms. The benzodiazepines also are useful for the management of insomnia in the elderly demented patient. The activity of these drugs in the elderly may be enhanced by increased receptor sensitivity and by accumulation of these drugs due to altered pharmacokinetic disposition. Such enhanced activity can lead to occurrence of paradoxical excitement, confusion, increased sedation, and impaired motor coordination. These adverse clinical manifestations can best be avoided by use of short-acting benzodiazepines that are not converted to active metabolites. Drugs that possess this therapeutic advantage for the treatment of anxiety are alprazolam, lorazepam, and oxazepam. Triazolam and temazepam possess this advantage for the treatment of insomnia.

Depression is common in elderly patients and often mimics dementia. Antidepressants may be useful in patients with depression or depressive symptomatology. However, the commonly used tricyclic antidepressants may produce significant orthostatic hypotension and may produce or exacerbate confusional episodes. These drugs should be used cautiously in patients with cardiovascular disease. In general, tricyclic antidepressants that are secondary amines (eg, desipramine and nortriptyline) are characterized by lower anticholinergic and sedative activities and are the antidepressants of choice for use in the elderly.

Antipsychotic drugs can be used on a short-term basis to control agitation and irritability effectively, improve self-care and cooperation, and ameliorate aggression, unsociability, hallucinations, and delusions. However, these drugs should not be used as first-line therapy to manage such symptomatology because of their potential for producing adverse effects. When indicated, the differential selection of an antipsychotic drug rests upon consideration of these potential adverse effects. Aliphatic (eg, chlorpromazine) and piperidine (thioridazine) phenothiazines are used frequently; however, if their sedative, hypotensive, or anticholinergic actions are problematic, haloperidol or a piperazine (eg, trifluoperazine) phenothiazine may be indicated. The incidence of extrapyramidal reactions is greater with these more potent antipsychotics.

The major issue proceeding from the use of psychoactive drugs in elderly patients is the necessity for careful selection of the drug and titration of the dose to maximize therapeutic effect while avoiding the problem of overmedication. It is critical that the pharmacodynamic and pharmacokinetic alterations characteristic of the elderly be considered before drug therapy is initiated. Generally, drugs with short half-lives should be used and at doses lower than given to younger patients. Evaluation of a drug's spectrum and potential for producing adverse effects as well as the potential for interaction with other drugs that the patient is taking must be factored into the treatment plan. Finally, the individual charged with the supervision of the administration of the drug must fully understand the appropriate schedule and dose of administration, the expectation for improvement, and the potential for harm.

Research and Training in Geriatric Medicine

In recent years the basic, clinical, and health services research efforts into dementia in general and Alzheimer's disease specifically have greatly intensified. These research efforts have yielded important information bearing upon the etiology, epidemiology, diagnosis, and treatment of this disease state. Continuation and expansion of these efforts promise to bring us even closer to an understanding of the etiology and pathogenesis of Alzheimer's disease and, thus, to a greater facility and effectiveness in the diagnosis and treatment of this debilitating disorder.

Final definition of the neuroanatomic pathology and neurochemical aberration that contribute most directly to the occurrence of Alzheimer's disease requires continued strong support of basic and clinical research in the neurosciences. Of particular importance is the need to secure adequate amounts of brain tissue for research. Autopsies afford the family information and serve both to validate the clinical diagnosis and as a source of material for research and teaching purposes. For research, autopsies are particularly important because of the lack of an animal model for this disease. Brain tissue banks should be encouraged to include tissue from patients with Alzheimer's disease, from patients with other dementing illnesses, and from age-matched controls in adequate amounts. Development of an animal model with more precise neuropathologic and biochemical correlates is also important.

The educational experience of current medical students and residents also will be critical to the improvement of health care for the elderly in general and for demented patients in particular. In addition to the necessary acquisition of a base of knowledge in science and medicine and of a foundation of experience in diverse clinical situations, our physicians in training must be taught to sharpen their skills for managing the disorders of the elderly. They should be taught about normal aging as well as about disease in the elderly and taught to recognize the normal cognitive changes of aging as well as the presence of primary and secondary dementia. Medical students and residents should see a variety of reasonably healthy and ill elderly patients in a variety of settings where they can learn about the functions of various health professionals, support personnel, and available support services. Educational programs should introduce them to the multidisciplinary nature of the medical care system for the elderly and sensitize them to the need to use a multidisciplinary structure to provide optimal care to the demented patient. Lastly, it should be emphasized that a good deal of medical care must be conceived as long-term care rather than short-term cure.

A knowledgeable group of educators and scientists is necessary to carry out these research and educational functions. The shortages of personnel trained either to educate or to perform research in geriatrics and specifically in Alzheimer's disease have been documented repeatedly. Consequently, it is important to strengthen significantly both clinical and research training in the area of geriatric medicine and geriatric psychiatry.

Summary

The burden of dementia, for the patient and for the family, has in many instances been heavier than in other illnesses because help has been so scarce and so often unavailable. Dementia probably evokes more feelings of helplessness and hopelessness in physicians and other medical professionals than does any other diagnosis.

In the past two decades, physicians have come to realize that the diagnosis of dementia per se is not enough and that the physician must always proceed to identify the disease causing the dementia if possible. Thorough diagnostic evaluation of the demented patient leads most often to a diagnosis of Alzheimer's disease, for which specific therapy is currently unavailable. However, it is essential that physicians not conclude that the demented patient cannot benefit from medical care just because no remedy is available to treat the specific disease causing dementia. The distinction must be made here between treating the patient and treating the disease. Patients who have other untreatable diseases are not slighted by physicians just because their diseases are untreatable, nor should this happen to patients with dementia.

Treatment for many illnesses is symptomatic and not disease specific. This same approach will benefit patients with dementia, even when the dementia is caused by irreversible diseases. Many of the most distressing manifestations of dementia mentioned above (eg, depression, agitation, sleeplessness, and paranoid ideation) can be allevaited to a significant extent by pharamcologic agents. Many of the most distressing behavioral problems can be helped by consistent care utilizing behavioral therapy techniques and environmental supports. Families of demented patients always benefit from a physician's concern, knowledge, and advice. Until specific treatments for the major dementing disorders become available, it is essential that physicians focus their efforts on the care of the individual patient and family and that they improve their skills for providing these much needed and important services.

REFERENCES

1. US Dept of Commerce: Decennial Census of Population 1900-1983 and Projection of the Population Reports 1982, series P-25, No. 222. Bureau of the Census.
2. Mortimer JA, Schuman LM: The Epidemiology of Dementia 1981. New York, Oxford University Press.
3. Technology and Aging in America. Office of Technology Assessment, 1985.
4. Plum F: Dementia: An approaching epidemic. Nature 1979, 279:372-373.
5. Small GW, Jarvik LF: The dementia syndrome. Lancet 1982, 2:1443-1445.
6. Henderson AS: The coming epidemic of dementia. Aust NZJ Psychiatry 1983, 17:117-127.
7. Goldman R: The epidemiology and demography of dementia. Psychiatric Ann 1984, 14:169-174.
8. McKhann G, Drachman D, Folstein M, et al. Clinical diagnosis of Alzheimer's disease. Neurology 1984, 34:939-944.
9. Small GW, Liston EH, Jarvik LF: Diagnosis and treatment of dementia in the aged. West J Med 1981, 135:469-481.
10. Wells CF: The differential diagnosis of psychiatric disorders in the elderly, in Cole JO, Barrett JE (eds): Psychopathology of the Aged, 1980, New York, Raven Press.
11. Hachinski VC, Jleff LD, Zulhka E, et al. Cerebral blood flow in dementia. Arch Neurol 1975, 32:632-637.

Members of the Council on Scientific Affairs are John R. Beljan, MD, Philadelphia, Vice-Chairman; Stefano Bertozzi, Cambridge, Mass, Medical Student Representative; George M. Bohigian, MD, St Louis; E. Harvey Estes, Jr, MD, Durham, NC; Ira R. Friedlander, MD, Chicago, Resident Representative; John H. Moxley III, MD, Los Angeles, Chairman; William C. Scott, MD, Tucson; Joseph H. Skom, MD, Chicago; James B. Snow, Jr, MD, Philadelphia; Richard M. Steinhilber, MD, Cleveland; Jack P. Strong, MD, New Orleans; Henry N. Wagner, Jr, MD, Baltimore; William R. Hendee, PhD, Secretary; and William T. McGivney, PhD, Assistant Secretary.

The members of the Advisory Panel on Dementia are Joan King-Angell, Oakland, Calif, medical student; Ewald W. Busse, MD, Durham, NC; David Drachman, MD, Worchester, Mass; Michael N. Hart, MD, Iowa City; David Knopman, MD, Minneapolis; Herbert Pardes, MD, New York; Rogers J. Smith, MD, Portland, Ore, Council Liaison; James N. Sussex, MD, Miami, Panel Chairman; Philip G. Weiler, MD, Davis, Calif; Charles Wells, MD, Nashville, Tenn; Wigbert C. Wiederholt, MD, San Diego; James L. Fozard, PhD, Panel Consultant; and Nancy Mace, MA, Panel Consultant. Staff writers include William McGivney, PhD, Panel Secretary; Suellen Muldoon; and Patti Dietz, MPH.

Ribavirin

GARY FUSCO, R.PH AND BERIT GUNDERSON, PHARM.D.

Ribavirin (Virazole®) is a broad spectrum antiviral drug which has activity against both DNA and RNA viruses. It was recently approved by the U.S. Food and Drug Administration to treat carefully selected infants and young children with lower respiratory tract infections due to respiratory syncytial virus (RSV).[1,5,8] The drug is approved for administration by aerosol therapy only, using the Viratek small particle aerosol generator (SPAG-2).[4] This drug has also been shown to have good *in vitro* activity against herpes simplex Types I and II and influenza Types A and B.

RSV infection is a severe lower respiratory tract illness or tracheo-bronchitis which produces dyspnea, increases respiratory rate and intercostal retractions.[6,8] Infiltrates may be visible on x-ray but a diagnosis may be made from a nasopharyngeal aspirate positive for RSV.[8] The mortality rate among hospitalized children with RSV ranges between 0.5% to 5.6% and may be as high as 37% in infants with cardiac abnormalities.[8] Patients with underlying disease and/or who are immunocompromised are at high risk for this infection. The virus can also occur in adults and the elderly which can be severe in some cases.[8] As of yet, no vaccine is available for this disease.[1]

Pharmacology and Pharmacokinetics

Ribavirin induces its antiviral activity against both DNA and RNA viruses.[1,2,9] The drug is also active against viruses resistant to other antivirals and does not appear to produce resistance against itself.[1,2] Ribavirin is believed to be virostatic but its mechanism of action is not clear.[2] The drug may act by inhibiting viral nucleic acid synthesis which alters intracellular nucleotide pools and messenger-RNA formation.[1,2,8,9] Ribavirin does not induce interferon production to exhibit its antiviral action.[2]

When ribavirin is administered by aerosol inhalation, very low concentrations of the drug are detected systemically, but concentrations in respiratory secretions are 100 times higher.[8] The plasma half-life is reported to be approximately nine hours with aerosol therapy and one to two hours in tracheal secretions.[2]

When ribavirin is administered orally, peak plasma levels are obtained between 1-1.5 hours.[9] The drug and its metabolites are eliminated slowly through the kidney with renal excretion accounting for less than 40% in 72 hours.[9] Large amounts of the drug are distributed in red blood cells thus producing a plasma half-life of about 24 hours.[9] Ribavirin, because of its poor liposolubility, does not cross the blood brain barrier.[2,3]

Clinical Studies

Studies have shown that infants with lower respiratory-tract infections from RSV who are treated with ribavirin by inhalation had a significant improvement in lower respiratory-tract signs compared to placebo treated infants. The improvement in respiratory status was associated with better arterial oxygen saturation and reduced viral shedding.[5]

In one nonrandomized study involving 27 severely ill infants (i.e. cardiopulmonary disease, immuno-deficiency or neurological disease) with RSV infection, all infants responded to therapy, but one who had stopped shedding the virus for over a month died of another infection three weeks after ribavirin therapy was discontinued.[6]

A controlled double-blind study was performed with 16 young adult volunteers (20-30 years) who were inoculated with the RSV virus. Thirteen proved to be infected with the virus and were treated with ribavirin or placebo. One half of the subjects were administered ribavirin by small particle aerosol for 12 hours each day for three days. The remaining subjects received placebo. Ribavirin was administered at a dose of 55mg/hour (660mg/day). The ribavirin treated group responded better with significantly less viral shedding, systemic complaints or fever compared to the placebo treated group. Also the ribavirin treated group tolerated the drug well and demonstrated no significant changes in pulmonary function tests, or signs of toxicity.[7]

GARY FUSCO, R.PH, Staff Pharmacist, Hartford Hospital. BERIT GUNDERSON, PHARM.D., Post-doctoral Pharmacy Fellow in Pediatrics and Assistant Clinical Professor at the University of Connecticut.

This new series on Drug Information Updates from the Hartford Hospital are supplied by Charles H. Nightingale, PH.D., Director of Pharmacy Services, Hartford Hospital.

Editors: Moses Sing Sum Chow, Pharm.D. and Robert A. Quercia, M.S., R.Ph.

Adverse Effects

In most studies, aerosol administration of the drug was well tolerated with no signs of toxicity. However, deterioration of respiratory function has been associated with ribavirin when administered by aerosol inhalation in infants and in adults with chronic obstructive lung disease or asthma.[4]

When administered orally the drug caused transient hematologic effects (i.e. elevated bilirubin, decline in hemoglobin).[2,4,8]

Ribavirin was shown to be teratogenic and embryotoxic in rodents, but not in primates when given in the first trimester of pregnancy.[8,9] Also, the drug is mutagenic and possibly carcinogenic.[8]

The package insert carries the warning: Ribavirin aerosol should not be used in conjunction with a respirator because precipitation of the drug on the valves and tubing of the equipment may interfere with safe and effective ventilation of the patient.[4,8] When the drug is used to treat a patient on a respirator, the use of prefilters, which must be changed frequently, is essential.[8]

Dosing

Treatment with ribavirin has been shown to be effective when initiated within 3 days of the RSV infection, using the Viratek small particle aerosol generator (SPAG-2).[4] Therapy should be carried out for 12-18 hours each day for at least 3 but not more than 7 days.[7] In adults, the dose is 0.82mg/kg of body weight per hour of administration, but the actual dose depends in part on the patients ventilation and lung pathology.[6] In infants, the exact dosage of ribavirin delivered cannot be determined since small-particle disposition in infants has yet to be measured.[6] At Hartford Hospital, one vial (6g) of ribavirin is given over a 24 hour period via an aerosol generator. The exact dose the child receives in this period is hard to estimate since the drug adheres to the tubing and prefilter of the generator.

Cost

Ribavirin (Virazole) is supplied as a 6g (110ml vial) with no preservatives. With the use of one vial daily, the cost to the patient would range between $788-$1838 per course of therapy.

Summary

Ribavirin shows great promise in decreasing morbidity and mortality in infants, children and adults with RSV infection, especially when the hose is compromised by other underlying illnesses.

At the October 14, 1986 Therapeutics Committee meeting the use of ribavirin at Hartford Hospital was restricted to:

1. Infants with congenital heart disease in whom respiratory synctial virus infections could cause significant problems.
2. Infants with underlying pulmonary disease such as broncho-pulmonary dysplasia in whom respiratory synctial virus infections may cause deterioration of pulmonary function.
3. Infants with immunodeficiency such as AIDS or SCIDS.
4. Infants in whom respiratory synctial virus infections are causing respiratory compromise with a likelihood of progressing to respiratory failure requiring ventilatory assistance.
5. Ribavirin will be used only with the approval of Pediatric Infectious Disease or Adult Infectious Disease.
6. Ribavirin will be used on infants on mechanical ventilation only as per the protocol for research project "The Administration of Ribavirin Aerosol in Infant with Respiratory Synctial Virus Infections who need Mechanical Ventilation", and only after the parent or legal guardian has signed an informed consent.
7. Respiratory Synctial Virus Infections should be documented by a rapid diagnostic method (such as direct fluorescent antibody [FA] testing). . .before or during the first 24 hours of treatment. . .treatment may be initiated while awaiting rapid diagnostic test results. However, treatment should not be continued without documentation of RSV infection.

REFERENCES

1. Connor CS: Ribavirin. Drug Intell Clin Pharm 1984, 18:137-8.
2. Hall CB: Ribavirin: Beginning the blitz on respiratory viruses? Ped Infect Dis 1985, 4(6):668-71.
3. Canonico PG, Jahrling PB: Chemotherapy for "exotic" RNA viruses, J Antimicro Chemo 1985, 15:129-138.
4. Viraxole (Ribavirin) prescribing information.
5. Hall CB, McBride JT, Walsh EE; Aerosolized ribavirin treatment in infants with respiratory syncytial viral infection. N Engl J Med 1983, 308:1443-7.
6. Hall CB, McBride JT, Gala CL; Ribavirin treatment of respiratory syncytial viral infection in infants with underlying cardiopulmonary disease; JAMA 1985, 254:3047-3051.
7. Hall CB, Walsh EE, Hruska JF; Ribavirin treatment of experimental respiratory syncytial viral infection; JAMA 1983, 249:2666-2670.
8. The Medical Letter, April 25 1986, Vol 28 (issue 712):45-46.
9. Chang TW, Heel RC: Ribavirin and Inosiplex: A review of their present status in viral diseases. Drugs 1981, 22:111-128.

Platelet Transfusion Therapy

NATIONAL INSTITUTES OF HEALTH

In the past, patients with thrombocytopenia died of hemorrhage with distressingly predictable frequency. The increased use of platelet transfusions during the past 15 years has prevented most such deaths. Furthermore, this therapy has made it possible to treat patients who have otherwise fatal disorders with drugs that temporarily suppress platelet production. With this great benefit, however, have come complex problems. Transfused platelets can transmit fatal diseases and can elicit an immune response in recipients, so that further transfusions are no longer effective. Although platelet therapy has contributed greatly to the management of patients with many diseases such as acute leukemia and aplastic anemia, serious questions have emerged regarding its use in patients undergoing cardiac surgery and in other circumstances. The prophylactic administration of platelets is also controversial, and there is uncertainty as to the platelet levels that predispose thrombocytopenic patients to hemorrhage and as to the effectiveness of modalities other than platelets in the prevention of bleeding. The relative merits of the various methods for obtaining and storing platelets remain unclear. The advantages and disadvantages of platelets obtained from multiple and single donors require evaluation.

To resolve these issues, the National Heart, Lung, and Blood Institute, the Center for Drugs and Biologics of the Food and Drug Administration, and the Office of Medical Applications of Research convened a Consensus Development Conference on Platelet Transfusion Therapy on October 6-8, 1986. At a 1½ day series of presentations by experts in the field, a consensus panel drawn from the medical professions, blood banking organizations, and the general public considered the evidence. The panel agreed on answers to the following key questions:

1. What are the appropriate indications for platelet transfusion?
2. What products are available and what are their relative merits?
3. What are the risks associated with platelet transfusion?
4. What are the most important directions for future research?

1. What Are The Appropriate Indications For Platelet Transfusion?

Despite the obvious advantages of platelet transfusion therapy, there is concern that platelets are sometimes given to patients who do not really need them, are given too often to patients who do need them, and occasionally are given in insufficient quantities when treatment is urgently required. Clinical decisions regarding platelet transfusion are hampered by an insufficient number of properly controlled trials, by imprecise methods of evaluating clinical need, and by uncertain methods for measuring effects.

The platelet levels that predispose thrombocytopenic patients to hemorrhage and the efficacy of therapeutic modalities other than transfusion are not well defined. It is apparent that factors other than the platelet count must also be considered in deciding when to transfuse. The efficacy of transfused platelets may be altered by other abnormalities in the recipient such as uremia, concomitant coagulation disorders, or medications. That rate and direction of change in platelet count must also be considered.

Active Bleeding

Patients with thrombocytopenia or an abnormality of platelet function or both who have significant bleeding should receive platelets if the platelet disorder is likely to be causing or contributing to the bleeding. It is sometimes difficult to make this judgment clinically. It is unlikely that a patient with a platelet count of 50,000/μL or higher will benefit from a platelet transfusion if thrombocytopenia is the sole abnormality. If the disorder is one of function, reliance must be placed on some test of platelet function, such as the template bleeding time. A bleeding time of less than twice the upper limit of normal is usually not an indication for transfusion of platelets, unless there are other conditions that interfere with hemostasis.

From the Office of Medical Applications of Research, National Institute of Health, Bethesda, Md.

Reprint requests to Office of Medical Applications of Research, Bldg 1, Room 216, National Institutes of Health, Bethesda, MD 20205 (Michael J. Bernstein).

Prophylaxis

The patient with severe thrombocytopenia may benefit from prophylactic administration of platelets. This is particularly true of patients with a temporary thrombocytopenia consequent to myelosuppressive therapy. It is common practice to use a preselected level of thrombocytopenia to decide when to transfuse platelets prophylactically. The value of 20,000 platelets/μL is often used. This figure is based on older studies with potential defects as judged by current knowledge. Recent evidence suggests that this number might safely be lower for some patients based on clinical judgment and close observation. A problem with selecting specific concentrations is the lack of reproducibility and the variability of platelet counts at low levels.

Patients with chronic thrombocytopenia caused by impaired platelet production (e.g., aplastic anemia, myelodysplastic disorders) generally do not require routine platelet transfusions. Patients with accelerated destruction but active production of platelets (e.g., idiopathic thrombocytopenic purpura) have relatively less bleeding at a given platelet count than patients with hypoplastic platelet disorders. Thus, platelet transfusions are rarely needed in these conditions. Other appropriate medical and surgical therapy is usually effective.

Preparation for invasive procedures in thrombocytopenic or thrombocytopathic patients might include prophylactic administration of platelets. In many instances there are associated disorders of coagulation or platelet function that cannot be completely corrected, as is common in patients with advanced hepatic or renal insufficiency. In such patients, transfusions to a higher platelet level may be necessary, especially for procedures in which hemostasis cannot be assessed by direct observation. Transfusion of enough platelets to correct the bleeding time to the normal range is logical, but there are few, if any, pertinent studies. A similar approach may be justified for patients threatened with hemorrhage in the central nervous system or other sites in which a small amount of bleeding could be critical.

Massive Transfusion

Dilutional thrombocytopenia occurs in patients receiving multiple transfusions to replace blood lost through hemorrhage and may lead to generalized microvascular bleeding. The degree of dilution is usually predictable. Following replacement of one blood volume, 35% to 40% of the platelets usually remain. Thrombocytopenia is accentuated in the presence of accelerated platelet destruction, which sometimes occurs in such patients, mandating performance of platelet counts as a guide to platelet therapy. The majority of patients who receive rapid replacement of one to two blood volumes do not develop microvascular bleeding as a result of thrombocytopenia. Therefore, platelets should not be administered in the absence of documented thrombocytopenia and clinically abnormal bleeding.

Cardiac Surgery

Controlled prospective studies examining postoperative blood loss and outcome have demonstrated no correlation between platelet counts and bleeding following cardiopulmonary bypass and no detectable benefit from the prophylactic administration of platelets to such patients. The vast majority of such patients have some degree of thrombocytopenia, prolongation of the bleeding time, and continued slow bleeding. With an expected pattern of bleeding, thrombocytopenia alone is not an indication for platelet transfusion. There is no justification for prophylactic platelet administration in patients undergoing open heart surgery.

Newborns

Because of the special nature of neonatal requirements for blood and blood products as well as dosages, these issues were not addressed specifically in this report. Nonetheless, efforts should be exerted to continue to avoid undue exposure to multiple donor sources.

2. What Products Are Available, And What Are Their Relative Merits?

Platelets can be harvested from single donors by plateletapheresis or separated from whole blood, with pooling of cells from multiple donors to achieve a therapeutic dose. Single-donor platelets* can be obtained from random donors or from donors selected on the basis of HLA compatibility. Local conditions and practices often influence the choice among these alternatives, but there are identifiable advantages and disadvantages of each product that should be considered. These include availability, potential for disease transmission, and potential for alloimmunization.

Products

Since each single-donor apheresis collection provides the equivalent of the platelets obtained from five to eight whole blood donations, this product exposes a patient to fewer donors and offers potential advantages over the multiple-donor product: less exposure to infectious agents and reduced likelihood of alloimmunization. However, there is no evidence that single-donor platelets are either more or less effective than multiple-donor concentrates in patients who have not become alloimmunized.

A major advantage of multiple-donor platelets is that they are in relatively plentiful supply, having been derived from conventional whole-blood donations. Moreover they can be stored for five days, assuring a stable community resource. Storage time for single-donor platelets depends on the method used for harvesting; in some cases, the product must be used within 24 hours.

Certain organizational and logistical considerations influence the choice of platelets from random or HLA-matched single donors. Donation of platelets by apheresis requires a greater donor commitment than does whole-blood donation, as well as sophisticated equipment and highly trained personnel. Even where enough donors are available, the complexity of the procedure as currently employed can make its routine use infeasible. However, HLA-matched single-donor products are currently the most effective therapy for patients who have become refractory to unselected single-donor or multiple-donor platelets.

---

* The term single-donor platelets is used to mean platelets obtained by apheresis from a single donor. The number of platelets obtained is approximately equal to the number of platelets obtained from five to eight whole-blood donations.

Storage

Platelets are normally stored at 20°C to 24°C, with constant agitation for up to five days. Although platelets stored at 4°C are a licensed product, they are now rarely used because of their reduced survival and function after transfusion.

Platelets can be frozen to extend their storage period. Since patients who have become refractory to platelet transfusions during one course of chemotherapy will usually be difficult to treat during subsequent periods of chemotherapy-induced hypoplasia, their anticipated need can be met by the cryopreservation of autologous platelets obtained by apheresis during a remission. The low yield and high cost of cryopreserved platelets have limited their use in other conditions.

Dosage

The therapeutic dose of platelets is affected by the patient's pretransfusion platelet count and blood volume, as well as by associated clinical conditions. The common practice of transfusing multiple-donor platelets at a dose of one unit per 10 kg body weight, or of transfusing a concentrate obtained from one apheresis donor, is a reasonable starting point for platelet therapy in the adult patient. The effect of a transfusion should be judged by the clinical result and the platelet count obtained 1 hour later. These measures plus later platelet counts as indicated can also provide guidance for further treatment.

A standard 170 μm filter is recommended for the administration of platelets. Filters of smaller pore size are not indicated.

Adjunctive Therapies

Several agents have been used in addition to, or in place of, platelets in the treatment of thrombocytopenia resulting from impaired production or platelet dysfunction. Epsilon-aminocaproic acid (EACA) and prednisone have been considered useful for the treatment of these conditions by some clinicians, but there are no satisfactory studies that support their regular use. In uremia, bleeding responds in many cases to treatment with cryoprecipitate or desmopressin (DDAVP), and platelet transfusions can be avoided.

3. What Are The Risks Associated With Platelet Transfusion Therapy?

The major risks associated with platelet transfusion are alloimmunization and infection. Rarely, platelet transfusions cause graft-versus-host disease.

Alloimmunization and the Refractory State

When platelet-reactive antibodies are induced by transfusion, platelets subsequently administered often fail to produce a therapeutic benefit. A poor response to transfused platelets also can be caused by splenomegaly, fever, sepsis, disseminated intravascular coagulation, nonviable platelets, and other conditions. Alloimmunization to platelet antigens is common in patients who have received repeated transfusions. However, an appreciable number of patients fail to form platelet-reactive antibodies for reasons that are not clear. There is no well-defined relationship between the number of donor exposures and the extent of antibody formation, although one study suggests a lower incidence of alloimmunization in patients exposed to platelets derived by apheresis from fewer donors. Alloimmunization to the HLA-A and HLA-B antigens is encountered most frequently. Evidence indicates that leukocytes, present in routinely prepared platelet concentrates, provoke HLA-antibody formation more readily than platelets.

The failure of HLA-matched platelets to elevate the platelet count after transfusion to some alloimmunized patients suggests that antibodies reactive with non-HLA, platelet-specific antigens can cause destruction of transfused platelets. Circulating immune complexes have also been implicated. ABO compatibility between donor and recipient is of minor importance in platelet transfusion therapy in most adults. Administration of ABO incompatible platelets is an acceptable transfusion practice. The possibility of Rh immunization should be considered in female recipients.

Various strategies have been proposed to cope with the therapeutic problems presented by alloimmunized, thrombocytopenic patients. Administration of leukocyte-poor blood products to patients likely to require continuing transfusion support has been advocated to reduce the frequency of alloimmunization, but the feasibility and effectiveness of this strategy have not been conclusively demonstrated. The same is true of the prospective use of platelets from single donors. New approaches to this problem, still in an experimental stage, are treatment of platelet concentrates with ultraviolet light to abolish the immunogenicity of contaminating leukocytes and the transfusion of soluble, class I HLA antigens to induce active tolerance.

Various techniques have been used to improve the effectiveness of platelets in alloimmunized patients. The most feasible of these is the transfusion of HLA-matched platelets from family members or unrelated persons. If not available locally, matched platelets can sometimes be obtained from regional blood centers with access to large panels of HLA-typed donors. Only about two-thirds of HLA-matched platelet transfusions given to alloimmunized patients are effective. Newer immunologic techniques appear capable of predicting transfusion response in such patients with an 80 percent to 90 percent certainty.

These assays are available in only a few centers and are not yet applicable to standard transfusion practice. High-dose intravenous immunoglobulin therapy, splenectomy, and removal of alloantibodies by plasmapheresis may be of marginal benefit but cannot be recommended for routine use.

Infection

Infections transmitted by platelet transfusions are similar to those associated with other blood components. These are of special concern because platelet transfusions often are prepared by pooling concentrates from multiple donors and are given in large numbers to immunocompromised patients. With agents infrequently present in donated blood such as the human immunodeficiency virus (HIV), the risk of infection is roughly proportional to the number of donor exposures. As with other blood products, agents causing most of the serious infections are the non-A, non-B hepatitis virus(es), hepatitis B virus, cytomegalovirus, and HIV. The risk of disease transmission with blood transfusion varies geographically and among donor populations but appears to be decreasing nationally because of newly implemented test methods and donor-screening policies.

An unusual, but sometimes fatal, complication of platelet transfusion is infusion of bacteria that have proliferated in concentrates stored at 20°C to 24°C. Physicians should be aware of this complication and be prepared to administer antibiotics and supportive measures. Attempts should be made to identify the source of the contamination in all such cases.

Graft-Versus-Host Disease

Graft-versus-host disease is a rare complication of platelet transfusions that can be prevented by gamma irradiation of concentrates prior to transfusion to patients who have undergone bone marrow transplantation or have other forms of immunodeficiency.

4. What Are The Most Important Directions For Future Research?

Research should be directed toward the following*:

Recipient-Related Issues

1. Development of a practical test that predicts the likelihood of clinically significant platelet-related bleeding.
2. Controlled clinical trials to evaluate strategies for prophylactic use of platelets in patients with disorders of platelet production.
3. Evaluation of pharmacologic approaches designed to reduce platelet requirements.

Product-Related Issues

1. Development of better techniques to harvest platelets with minimal contamination with other blood components.
2. Better methods of platelet preservation.
3. Practical means for detecting ineffective units and bacterial contamination prior to transfusion.
4. Better characterization of platelet alloantigens and the development of practical methods to detect platelet alloantibodies and select compatible donors.
5. Effective means to prevent alloimmunization and to manage the alloimmunized patient.
6. Development of methods and strategies to lessen the incidence of transfusion-transmitted diseases.
7. Monitoring of the patterns of platelet use.

Donor-Related Issues

1. Assessment of the long-term effects of repeated plateletapheresis.
2. Identification of factors leading to successful recruitment of plateletapheresis donors.

Platelet use is controlled locally and determined largely by existing practice. Attempts to alter platelet use frequently have been ineffective. The most successful attempts can be attributed to a strong local proponent of appropriate transfusion practices. Ongoing collaborative efforts, including component therapy workshops involving clinicians, blood bank directors, and members of hospital transfusion committees, can do much to alter existing practices. Increased attention to the risks and benefits of component therapy in medical schools and teaching hospitals also may change the use of platelet concentrates. When appropriate, information regarding potential risks and benefits of platelets and other blood products should be made available to patients who receive those products. Monitoring the patterns of platelet use on a continuing basis will provide a means for evaluating the impact of those strategies and a basis for suggesting additional or alternative approaches.

Conclusions

In this document, the panel has made a number of observations and recommendations based on information presented at this conference relating to the indications for platelet transfusion, products available, and associated risks. We believe platelets are overused in some conditions. An example is the prophylactic use of platelets in open heart surgery, a practice the panel believes is unwarranted. Some of the uncertainty surrounding platelet transfusion practices is related to the lack of methods for predicting which patients are at risk to bleed and the effectiveness of various platelet preparations. We recommend research initiatives to provide better guidelines for transfusion practice.

More basic research to elucidate the role of platelets in hemostasis is needed. In addition, better information on current platelet transfusion practices, obtained through a surveillance system at a national level, would be of great benefit as an educational tool. Efforts to overcome the problems associated with alloimmunization to platelets are imperative. A major step in this regard would be the establishment of a national network to facilitate transfusion of HLA-matched platelets to selected patients. Infections transmitted by platelet transfusions remain a major concern. Elimination of bacterial growth in platelet concentrates stored at room temperatures warrants special attention.

---

* Priorities are not implied in this sequence.

Members of the Consensus Development Panel were: Richard H. Aster, MD, Panel and Conference Chairperson, Clinical Professor of Medicine and Pathology, Medical College of Wisconsin, Milwaukee; Alfred A. Bartolucci, PhD, Professor and Chairman, Department of Biostatistics and Biomathematics, University of Alabama at Birmingham, Birmingham; John A. Collins, MD, Professor and Chairman, Department of Surgery, Stanford University School of Medicine, Stanford, CA; Theodore Colton, ScD, Professor of Public Health, Boston University School of Public Health, Boston, MA; Arlan J. Gottlieb, MD, Professor of Medicine, Chief of Hematology, Department of Medicine, State University of New York Health Center at Syracuse, Syracuse, New York; Tibor J. Greenwalt, MD, Director, Hoxworth Blood Center, Emeritus Professor of Internal Medicine and Pathology, University of Cincinnati, Cincinnati, Ohio; Leon W. Hoyer, MD, Associate Vice President, Biomedical Research and Development, American Red Cross, Bethesda, MD; Robert McMillan, MD, Director, Weingart Center for Bone Marrow Transplantation, Member, Department of Basic and Clinical Research, Scripps Clinic and Research Foundation, La Jolla, CA; Jane Allyn Piliavin, PhD, Professor and Director of Graduate Studies, Department of Sociology, University of Wisconsin, Madison, Wisconsin; Jane E. Russell, Deputy Director, Quality Control Center, Dana-Farber Cancer Institute, Boston, MA; Jacob N. Shanberge, MD, Chief, Hemostasiology Laboratory, Department of Clinical Pathology, William Beaumont Hospital, Royal Oak, Michigan and Clinical Professor of Medicine, University of Michigan; Ernest R. Simon, MD, Executive Vice President for Medical Affairs, Blood Systems, Inc., Scottsdale, Arizona and Clinical Professor of Medicine, University of New Mexico; Linda Stehling, MD, Professor of Anesthesiology and Pediatrics, State University of New York Health Center at Syracuse, Syracuse, New York.

Members of the planning committee were: George J. Nemo, PhD, Planning Committee Chairperson, Chief, Blood Resources Branch, Division of Blood Diseases and Resources, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD; Richard H. Aster, MD, President, Blood Center of Southeastern Wisconsin, Clinical Professor of Medicine and Pathology, Medical College of Wisconsin, Milwaukee, Wisconsin; Susan M. Clark, Social Science Analyst, Office of Medical Applications of Research, National Institutes of Health, Bethesda, MD; Joseph C. Fratantoni, MD, Chief, Laboratory of Cellular Components and Transfusion Medicine, Center for Drugs and Biologics, Food and Drug Administration, Bethesda, MD; Edwin W. Salzmann, MD, Professor of Surgery, Department of Surgery, Harvard Medical School, Beth Israel Hospital, Boston, MA; Charles A. Schiffer, MD, Professor and Chief, Division of Hematology, University of Maryland Cancer Center, University of Maryland School of Medicine, Baltimore, MD; Sherrill J. Slichter, MD, Scientific Director, Puget Sound Blood Center, Professor of Medicine, University of Washington School of Medicine, Seattle, Washington.

Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

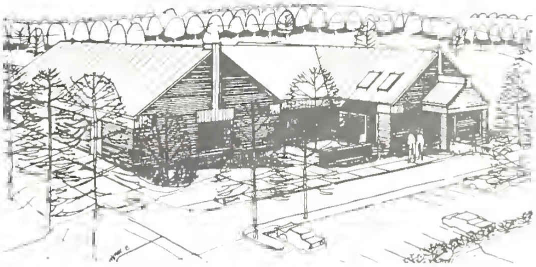
In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:

- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:

- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Medical) for Ophthalmology.
- CO2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

Doctors

Your fee is simple...collecting it is not.

- **Deductibles**
- **Non-alloweds**
- **Primary carriers**
- **Withholds**
- **Co-insurance**
- **Write-offs**
- **Secondary carriers**
- **Worker's Compensation and liability cases**

The ProMed™ Professional Office System will prepare your billing, submit your insurance claims and provide you with accurate financial records. ProMed™ also—

- Saves time, money, paper and postage costs.
- Improves cash flow with true electronic claims submission.
- Provides full training, installation and support.
- Fairly prices our systems and provides 6.5% fixed rate financing.

It's time to put ProMed™ to work for your practice. Call Bob Seekamp, Director of Marketing, at 1-800-922-3385 for further information.

ProMed™
SYSTEMS INCORPORATED

A subsidiary of:

IBM
Personal Computers

221 Whitney Avenue
New Haven, Connecticut 06511
(203)773-8255

Blue Cross
Blue Shield
of Connecticut

The Inured Heart

HENRY SCHNEIDERMAN, M.D.

Nothing that matters escapes my wife Rosemaria. I came home one evening last week and told her about a perinatal autopsy that showed definite congenital syphilis, and she misted over and said, "That poor little baby." There it was. Syphilis had fascinated me since college, when I learned in History of Medicine and Fracastoro's poem and the 15th-century epidemics whose grip on contemporaneous public imagination, I think, compared with that of AIDS today (right down to a hypothesis about a Haitian connection).

The first two patients I saw in Institutional Neurology both had general paresis of the insane, a form of advanced tertiary neurosyphilis. This was in 1974, and I didn't know why Dr. Schwartz, the preceptor, jumped up and down with excited interest after the patients had left. I did notice his gentleness with the two timid, demented ladies, and later modeled several career decisions on such behavior. On the pathology side, I'd borrowed old Dr. Smythe's glass slides of luetic cords and brains, acquired when he was young and salvarsan was the new weapon, and photographed every feature. And I'd seen Dr. Dieterle's original slide of his eponymous stain for the spirochete. I'd found more cases in medical residency and beyond, such as that of Mr. Schirmer, whose Pancoast tumor led to admission and what was then an inevitable part of the routine admission blood "packet," a VDRL test. The tests ultimately showed that he had syphilis as well as cancer. Mrs. Galley's posterior-column neurological signs in the outpatient department had led to an investigation long after we'd stopped doing routine VDRLs, and she too proved to be afflicted.

But this was different. Somewhere I'd lost the perspective of tragedy, or become aware that it was lacking, and now I was ashamed. Were we not expecting our own first baby? Was not that doomed pregnancy as full of fear and hope as our own pregnancy? And was hope not now shattered for the parents, leaving them in misery to sort our whatever breach of fidelity, neatly timed by changing serological tests between conception and miscarriage, had been responsible? For that matter, were not those prior victims, some known to me only from their microscopic slides, equally full of human feelings and blighted wishes?

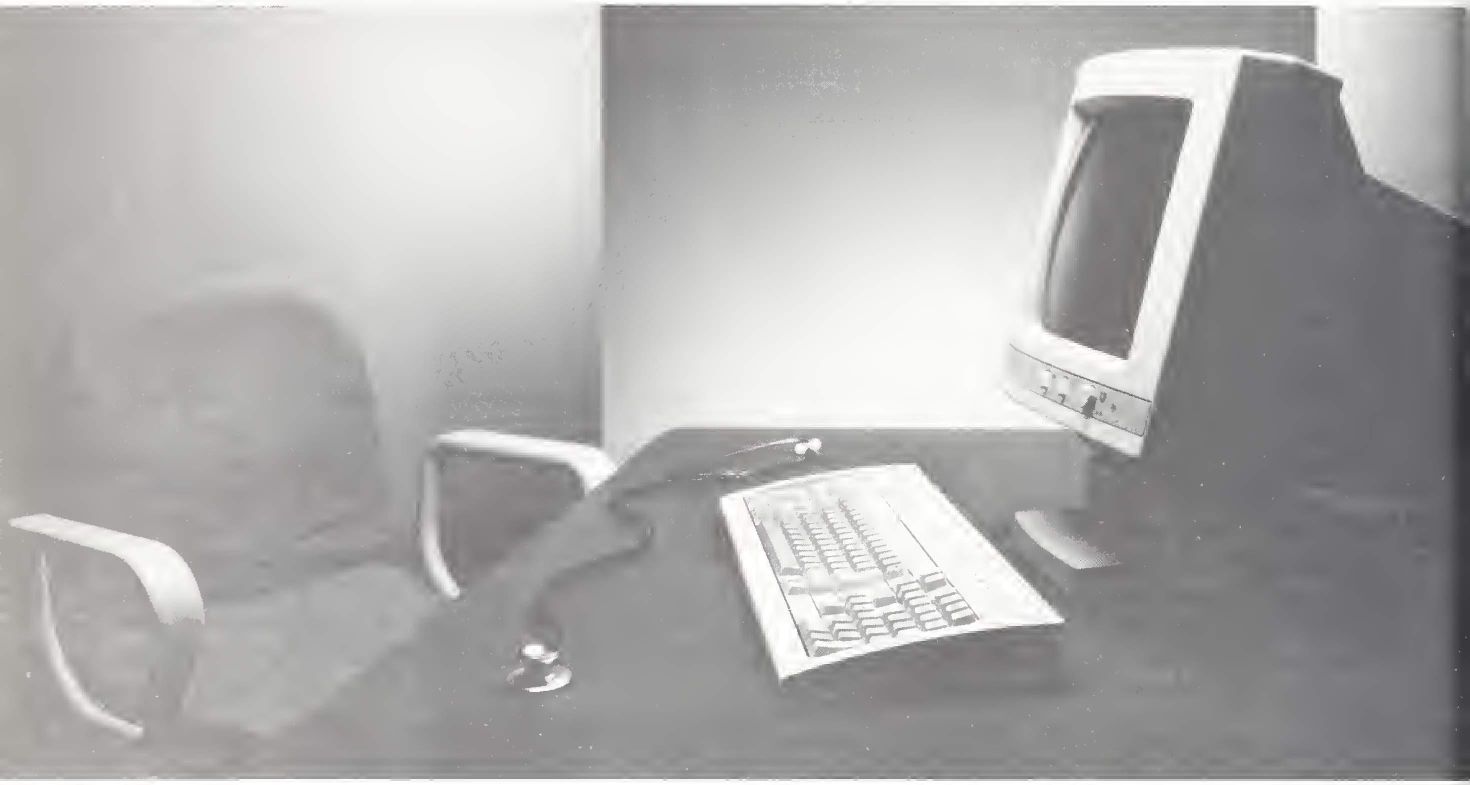
I paid. My colleague who had the case, himself a daddy thrice over, had tempered his enthusiasm with an acute awareness of how awful this was. Humbly serving education and prevention, he had taken photographs of the baby. They crossed my desk, and I had to look at them. The little deformed face struck me, that innocent baby who never had a chance to be born, grow up, live out her years, and then die. Disease robbed her of life before it began, and here the terrible irony struck anew, that this loss, unlike so much of what we see that kills people, could have been prevented by responsible sexual behavior or cured by timely drugs. It was too much. Whether my distress boded well for the preservation of my humanity, or ill for my ability to function, or both, the future will show. Empaths can't survive as doctors. There is just too much terrible, inescapable reality that one sees.

I no longer make myself futile promises about my feelings. Instead, I walked away recalling an older colleague's insight. He had said that a doctor has to treat, and thus to see, the sufferer above all else as a fellow creature in pain. The "great case" aspect comes only after that work of the heart's been done.

HENRY SCHNEIDERMAN, M.D., Teaching and Research Scholar of the American College of Physicians.

Reprinted with permission from the American Medical Association, copyright 1986, JAMA, 1986; 256:2576.

How More Than 2000 Doctors Have Eased The Pain Of Managing A Practice.



If your practice is like a lot of others, you often spend more time on office problems than on the health problems of your patients.

Our one easy-to-use, fully-integrated computer system can take care of billing, provide financial updates, help you market your practice. And give you more time to do what you went to medical school for.

"Medic continues to be the best system for our clients."
Thomas Booth, president of The PM Group, Battle Creek, Michigan

When this nationally-recognized medical consulting firm recommends a product to their clients, you know it's been carefully scrutinized. After reviewing over 60 medical systems, The PM Group judged our system to be the best. And the one that offers the best support and service.

"It's helped our cash flow tremendously."
Mike Griga, general manager of Mayfield Neurological Institute, Cincinnati, Ohio

Changing the billing system from once a month to once a week is just one way Medic has improved the bottom line of the nation's largest neurosurgery group. Our system can ease the process of sending statements and reduce the number of uncollected bills. Plus, our easy-to-understand printouts help you keep better track of your financial condition.

"When lightning knocked out our system, Medic worked through the night to get it up and running quickly."
Doug Speak, assistant administrator of Suncoast Medical Clinic, St. Petersburg, Florida

We'll do whatever it takes to keep your system working. Day or night. We have a toll-free STAT line to handle questions and problems. And there's a STAT PLUS line from our support center to your system for software updates and diagnoses.

So if you're looking to increase the efficiency, productivity and profitability of your practice, take a look at the Medic Computer System.

Over 2000 physicians in more than 600 practices throughout the U.S. are calling it a minor medical miracle.

medic
computer systems

6601 Six Forks Road, Suite 150
Raleigh, North Carolina 27609

Telephone toll-free: 1-800-334-8534
North Carolina: 919-847-8102

Other offices: Cincinnati, Ann Arbor
Orlando, Pittsburgh, Richmond

Please tell me how Medic Computer Systems can help my practice.

Name ______________________
Address ______________________
City ______________________
State ____________ Zip ____________
Phone (   ) ______________________
Number of physicians in practice ______________
Specialty ______________________

Medic Computer Systems
6601 Six Forks Rd., Suite 150
Raleigh, North Carolina 27609

The Physician's Dilemma

CAROLINE C. NIELSEN, PH.D.

ABSTRACT – The rapid introduction of biomedical technology has changed the traditional healing role of the physician. A review of research related to communication between patient and physician suggests that patient characteristics including passivity, ability to ask questions, and perception of the role of the physician affect communication and, ultimately, successful health care. Effective communication with patients is associated with greater patient satisfaction, increased compliance, and improved health outcome. Increased awareness of factors affecting communication in the health care process may aid the practicing physician in bridging the gap between technology and the traditional role of the healer.

As the practice and process of medicine becomes increasingly dependent on technology, the role of the human element in the diagnostic and healing process becomes less clear. The gains provided by the use of advanced technologies tend to separate the practitioner's role into two diverging directions: the role of the master technician which now assumes increasing significance, and the more diffuse role of the healer.

Traditionally, the art of healing has been concerned with the well-being of the total person within his or her individual social and cultural context. In traditional societies, the role of the healer encompassed far more than the treatment of disease. Aspects of that role included physician, judge, religious advisor, counselor, and even entertainer.[1] What is significant about the traditional approach is the social interaction which occurred when the patient was considered within his or her total social, cultural, family, and work context. The difference between the role of the traditional healer and the contemporary physician has appeared relatively recently and coincides with the development of biomedical technology.

Although it may not be feasible for the modern physician to consider all of these elements in providing patient care, effective communication can provide an important bridge between the use of technology and the art of healing. Recent surveys suggest that patients generally have few complaints with the technical competence of their physicians, but tend to be dissatisfied with the overall interaction.[2,3] Several studies have demonstrated that it is the ability of the physician to communicate an interest in the whole patient which produces a positive response.[4-9]

Communication and the Patient

Three basic aspects in the communication process have been identified in the relationship between patient and physician: 1) information giving – initially by the patient reporting symptoms and then by the physician when he or she shares what is known about the particular disease process and its treatment; 2) information receiving – by both patient and physician, and 3) support and empathy provided by the physician. Each of these aspects is affected by the physician's perception of the patient and his or her needs. Particular characteristics of patients have been shown to be related to the physician's perception; these include: 1) passivity; 2) questioning behavior; 3) language barriers; 4) socio-economic status, and 5) perception of the role of the physician.[10,11]

These patient characteristics tend to be interrelated. Many researchers have noted difficulties in communication between physicians and working class patients.[12-14] Studies have demonstrated that working class patients tend to be diffident in questioning their physicians about their illness or treatment. The sources of this seeming passivity have been ascribed to: 1) the belief among working class patients that physicians do not expect them to ask questions, and that in fact asking questions may imply that the patient lacks confidence in the physician's judgment; 2) the awe in which some patients regard their physicians, and 3) a language problem that results from patients' ignorance of technical terms.[15-17]

Reacting to these characteristics, physicians tend to typify patients as to their capacity for processing information, their desire for information, and their motivation to learn about their illness or treatment. Physicians generally communicate more with patients of higher social class and education level. However, research studies have shown that most patients want to know the nature and cause of their illness, the reasons for and the results of

---

CAROLINE C. NIELSEN, Ph.D., Medical Anthropology; Assistant Professor, Graduate Program, School of Allied Health Professions, University of Connecticut, Storrs, CT.

tests, the nature of the treatment, and how they are progressing. This is equally true of both lower and higher social class patients, and is unrelated to level of education.[18-19]

The technical and specialized nature of medical knowledge may be a major constraint to communication in the clinical setting. Many patients lack the means to successfully negotiate their own interests. They may not possess the technical vocabulary to provide information, to ask for information, or to process the information the physician provides in a meaningful way.[20] Perhaps more importantly, these patients may be reluctant to make the physician aware of their lack of understanding. These kinds of problems can easily be interpreted by the physician as a lack of interest or desire for information.

These patient characteristics may have subtle effects on the communication process which make it difficult for the physician to be aware that effective communication may not be taking place. Studies indicate that physicians may misperceive the amount of time devoted to giving information to a patient,[21] and may be unable to identify ineffective communication.[22] These concerns become increasingly important when the significance of communication in the health care process is considered.

Results of Effective Communication

Successful communication appears to be directly related to effective health care. Studies demonstrate that effective communication is associated with greater patient satisfaction, increased treatment compliance, and improved health outcome.[23-26]

Successful communication appears to be a particularly important factor in patient compliance.[27,28] Patients who are actively involved in their health care, and who participate with their physicians in decision-making about managing their illnesses are more likely to behave in ways which promote health. Patients were found to remember directions better when allowed to act as partners during interviews, and when they asked more questions, and were more talkative.

Various studies conclude that the patient's point of view should be actively sought by behaving in a manner that will encourage the patient's self-expression. Creating an atmosphere in which the patient feels comfortable, can use his or her own words to speak openly, and feels free to ask questions increases compliance with treatment. Two patient-centered behaviors have been consistently associated with increased compliance: 1) expressing concerns to release tension, and 2) making suggestions about his or her care.[29,30]

Physicians who interpret a patient's passive acceptance of the treatment plan as a sign of commitment to that course may be misled. Patients confer with many others about their health problems—relatives, friends, religious leaders, the local health food store—but an active involvement in determining the course of action increases commitment to the treatment plan. In addition, the patient who has a positive communication experience with the physician is more likely to return to that same physician thereby reducing recidivism, and possibly the risk of malpractice suits.

Conclusion

In practicing contemporary medicine, it may be unrealistic for the physician to consider playing the traditional roles of judge, entertainer, and religious advisor, but research has clearly indicated that the needs of the total patient are better served by successful communication. An awareness of the patient's characteristics, and sensitivity to their effect on the interaction, may affect the physician's ability to communicate with the patient, and ultimately the success of treatment and the course of healing. Despite rapid biotechnological advancements, the successful management of disease remains dependent on a process of social interaction.

REFERENCES

1. Foster GM, Anderson BG: Medical Anthropology, A. Knopf, N.Y. 1978.
2. Speedling EJ, ROse DN: Building an effective doctor-patient relationship: from patient satisfaction to patient participation. Soc Sci Med 1985, 21:115-120.
3. DiMatteo MR, Hays R: The significance of patients' perceptions of physician conduct: a study of patient satisfaction in a family practice center. J Comm Hlth 1980, 6:18-34.
4. Ware JE, Davies-Avery A, Steward AL: The measurement and meaning of patient satisfaction. Hlth Med Care Serv Rev 1978, 1:1-15.
5. DeMatteo MR, Prince IM, Taranta A: Patients' perceptions of physicians' behavior: determinants of patient commitment to the therapeutic relationship. J Communit Hlth 1979, 4:280-290.
6. Holka BS, Kupper LL, Daly MB et al: Correlates of satisfaction and dissatisfaction with medical care: a community perspective. Med Care 1975, 13:648-658.
7. Ware JE, Snyder MK: Dimensions of patient attitudes regarding doctors and medical care services. Med Care 1975, 13:669-682.
8. Ber-Sira Z: The function of the professional's affective behavior in client satisfaction: a revised approach to social interaction theory. J Hlth Soc Beh 1976, 17:3-11.
9. DiMatteo MR, Hays R: Op Cit 1980.
10. Cartwright A: Human Relations and Hospital Care, Rutledge and Keegan, London 1964.
11. Pendleton DA, Bochner S: The communication of medical information in general practice consultations as a function of patients social class. Soc Sci Med 1980, 14A:669-673.
12. Boreham P, Gibson D: The informative process in private medical consultations: a preliminary investigation. Soc Sci Med 1978, 12:409-416.
13. Cartwright A: Op Cit 1964.
14. Matthews JJ: The communication process in clinical settings. Soc Sci Med 1983, 17:1371-1378.
15. West C: Ask me no questions. . .an analysis of queries and replies in physician-patient dialogues. In S Fisher and A Todd (eds), The Social Organization of Doctor-Patient Communication, Washington DC: Center for Applied Linguistics 1983, 75-106.
16. Frankel RM: Talking in interviews: a dispreference for patient-initiated questions in physician-patient encounters. In G Psathas (ed), Interaction Competence New York: Irvington 1985.
17. Cartwright A: Op Cit 1964.
18. Matthews JJ: Op Cit 1983.
19. Pendleton DA, Bochner S: Op Cit 1980.

20. Matthews JJ: Op Cit 1983.

21. Waitzkin H: Information giving in medical care. J Hlth Soc Beh 1985, 26:81-101.

22. Epstein AM, Taylor WC, Seage GR: Effects of patients socioeconomic status and physicians' training and practice on doctor-patient communication. Am J Med 1985, 78:101-106.

23. Stewart MA: What is a successful doctor-patient interview? A study of interactions and outcomes. Soc Sci Med 1984, 19:167-175.

24. Carter WB, Inui TS: Outcome-based doctor-patient interaction analysis II: Identifying effective provider and patient behavior. Med Care 1982, 20:520-535.

25. Ross CE, Duff RS: Returning to the doctor: the effect of client characteristics, type of practice, and experiences with care. J Hlth Soc Beh 1982, 23:119-131.

26. DiMatteo MR: A social-psychological analysis of physician-patient rapport: toward a science of the art of medicine. J Soc Issues 1979, 35:12-29.

27. Heszen-Klemens I, Lapinska E: Doctor-patient interaction, patients' health behvior and effects of treatment. Soc Sci Med 1980, 14A:669-673.

28. Speedling EJ, Rose DN: Op Cit 1985.

29. Heszen-Klemens I, Lapinska E: Op Cit 1980.

30. Stewart, MA: Op Cit 1984.

Dx: recurrent herpes labialis

"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough."** DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits."** MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) . . . **response** was **dramatic. HERPECIN-L** . . proven **far superior."** DDS, PA

"All patients claimed **shorter duration** . . . at **prodromal symptoms** . . . HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

AYR INSURANCE AGENCY

Sponsored by

The Connecticut State Medical Society

Featuring:
Office Overhead Insurance
With New Lower Rates

-EXAMPLE-
$1,000 per mo. (ages 30-39) - $37.50 semi-annually
(14 day wait and 2 year benefit period)

Also Featuring:
Disability Income Insurance
Hospital, Surgical and Major Medical Insurance
Term Life Insurance

"Growing Bigger by Serving Better"

Alison Ayr
J. Lauren Ayr
David Gould
William Harrington

105 Sanford Street, Hamden, CT 06514
Telephone 288-4302

Current Medicolegal Issues

AMA—THE CITATION

Michigan Chiropractic Case Dismissed

On September 26, 1986, the U.S. District Court for the Eastern District of Michigan granted the motions of the AMA, Michigan State Medical Society, Joint Commission on Accreditation of Hospitals, American Hospital Association, American Osteopathic Association, Michigan Osteopathic Association and Munson Medical Center for summary judgment against the Chiropractic Cooperative Association of Michigan, a non-profit Michigan corporation consisting of twenty-one Michigan chiropractors who incorporated for purposes of prosecuting the antitrust action.

The case was filed on July 7, 1983 and an amended complaint was filed October 5, 1983 alleging violations of Sections 1 and 2 of the Sherman Act, seeking monetary damages and injunctive relief. The complaint followed the complaint in the *Wilk* case filed in Chicago in 1976. The defendants were alleged to have engaged in a combination and conspiracy to eliminate the chiropractic profession by refusing to deal with chiropractors or professionally associating with chiropractors in treatment, research and educational endeavors. As part of the group boycott, the complaint alleged that chiropractors were denied hospital staff and admitting privileges and access to laboratory test results and x-rays from hospitals and physicians.

The defendants' motions for summary judgment asserted that (1) the action was time-barred under the applicable four-year statute of limitations; (2) that plaintiff failed to show any injury to competition in the relevant markets or that any CCAM member suffered injury by reason of an antitrust violation committed by defendants singly or in concert; and (3) that plaintiff failed to bring forth any evidence of the defendants' participation in a conspiracy. The court noted that plaintiff relied extensively on the evidence submitted in the *Wilk* trial to prove the allegations in the case. The court pointed out that plaintiff submitted hundreds of exhibits from the *Wilk* trial that "were a confusing array of illogical letters and numbers which this Court spent countless hours sorting, in an effort to make some sense of Plaintiff's brief."

Since summary judgment motions are not favored in complex antitrust cases, the court reviewed the principles of law that guide a federal court in deciding whether to grant summary judgment. The party moving for summary judgment has the burden of clearly establishing the nonexistence of any genuine issue of fact material to a judgment in its favor and the evidence together with all inferences to be drawn therefrom must be considered in the light most favorable to the party opposing the motion. Plaintiff to prevail must show an overt act of the defendants causing injury within the four-year period immediately preceding the filing of the complaint.

The court reviewed the evidence with respect to each of the defendants to determine if there were any overt acts to support plaintiff's claims in the period from July 7, 1979 and July 7, 1983. In the case of AMA, the alleged prime mover behind the conspiracy to eliminate chiropractic, the court found that despite the questionable activities of the AMA in the 1960's, the evidence clearly showed that such activities ceased prior to the commencement of the statute of limitations in 1979. The AMA Committee on Quackery was disbanded in late 1974; the interpretation of Section 3 of the Principles of Medical Ethics was withdrawn in 1977; the basis for settlement of the Pennsylvania chiropractic antitrust case was affirmed by the AMA House of Delegates in 1978; and the policy was further clarified in a Report entitled "Position of the AMA on Chiropractic and Relations Between Physicians and Chiropractors" adopted at the 1979 Annual Meeting of the House of Delegates.

In reviewing the 1979 Report UU, the court stated: "This report reaffirms the AMA's position that chiropractic is without scientific evidence to support its position that spinal manipulation and adjustment is an appropriate treatment for human ailments such as essential hypertension, heart disease, stroke, cancer, diabetes, and infections, and that the Association would continue to warn the public of the hazards to health of entrusting the diagnosis and treatment of such conditions to practitioners who rely upon such theory to treat these diseases. The Board of Trustees Report, however, affirmatively stated that ethically a

---

THE CITATION is a newsletter on medicolegal issues prepared by the Office of The General Counsel of the American Medical Association.

physician is free to associate professionally with a chiropractor in the treatment of a patient."

The court rejected plaintiff's arguments that the AMA and other alleged co-conspirators have to establish an affirmative program to encourage professional relationships between medical doctors and chiropractors to avoid the conspiracy allegations. The court concluded that plaintiff failed to bring forth any evidence to establish an overt act by defendant AMA within the four-year statutory period.

The court similarly found no evidence of an overt act by JCAH, AHA or MSMS within the statutory period. JCAH deleted all references to the AMA Principles of Medical Ethics in the standards on August 1, 1977 and revised the pathology and radiology standards in the same year. The JCAH position is that hospital staff membership and decisions concerning staff privileges are matters to be resolved by the hospital in accordance with appropriate state laws. The court also found no evidence of an overt act by AHA during the relevant period and ruled summary judgment appropriate. Plaintiff produced no competent evidence to contradict the evidence submitted by MSMS that it had taken no adverse steps against chiropractic since 1976.

Plaintiff's allegations against AOA referred to a 1975 policy statement, but no evidence of any additional overt act within the limitations period. As to MOA, failure in 1981 to meet with the Michigan State Chiropractic Association regarding chiropractors having privileges in osteopathic hospitals was not found by the court to constitute an overt act. The action was taken unilaterally by MOA as beyond the scope and function of the Association since methods to evaluate applications for hospital staff privileges are established by each hospital based on the qualifications of individual applicants.

The court found that denial of an application for privileges by a chiropractor in 1978 and 1983 because its bylaws did not contain provisions for chiropractors on the medical staff was a unilateral act and not part of a conspiracy among defendants to eliminate chiropractic.

The court concluded that: "Plaintiff cannot attempt to bootstrap its claims by reliance on such stale evidence. Where, as in the instant case, the Defendants have come forward with affirmative evidence that they have not participated in any activities adverse to the chiropractors since at least 1979, Plaintiff cannot rest on the allegations in its complaint or advance totally speculative arguments in its brief or rely on an unsworn statement of facts as to the alleged conspiratorial activities of the Defendants to support its claims. Accordingly, this Court finds that Plaintiff's claims against Defendants for violations of Sections 1 and 2 of the Sherman Act are barred by the statute limitations and Plaintiff's complaint must be dismissed."

This should be the last of the *Wilk* copycat cases. By issuing a clean bill of health to the current policy and ethical positions of the AMA and other defendants, the four-year statute of limitations should cut off further suits and result in court-ordered sanctions against attorneys who attempt to rely upon stale evidence of a conspiracy to eliminate chiropractic.—*Chiropractic Cooperative Association of Michigan v. American Medical Association, et al.*, 1986-2 Trade Cases, CCH ¶67,294, (U.S. Dist.Ct., Civil No. 83-CV-2701-DT, Sept. 26, 1986)

—B.J. Anderson, J.D.
Associate General Counsel, AMA

Kansas Has No Cause Of Action For Wrongful Life

A child could not recover damages for negligent genetic counseling of his parents because there was no recognized cause of action for wrongful life in Kansas, the Kansas Supreme Court ruled.

After their first child was born with multiple congenital anomalies, the parents sought genetic counseling at a hospital. A physician allegedly advised them that the child's condition was not due to a known chromosomal or measurable biochemical disorder.

The parents relied on the physician's advice and had a second child, who was also impaired. The mother sued the physician and hospital on the child's behalf, contending that but for inadequate and negligent counseling the child would not have been born to experience the pain and suffering caused by his abnormalities.

On appeal, affirming a lower court decision, the Kansas Supreme Court said that it was a fundamental principle of law that life is precious. A legal right not to be born is a theory completely contradictory to the principle and to state law.

The court said that it agreed with the Supreme Courts of Idaho, Alabama and North Carolina and the Court of Appeals of New York.—*Bruggeman v. Schimke*, 718 P.2d 635 (Kan.Sup.Ct., May 2, 1986)

Patient Claims Her Discharge From Hospital Was Too Early

Summary judgment for a hospital was precluded in the light of material issues of fact regarding its negligence, a New York appellate court ruled.

A patient sued the hospital, alleging that she was prematurely discharged after undergoing a successful appendectomy. She said that she had strenuously objected to being discharged while she was still in pain and running a fever. She claimed that about five days later her incision burst, pouring infectious material all over her and causing additional damage.

The patient contended that the hospital was negligent in failing to properly take her temperature and discover the presence of an infection on the day she was released. She said that an unidentified nurse noted that she was afebrile on the date of discharge, but the actual temperature was not filled in. Further, three days earlier, a nurse had allegedly marked down that she was afebrile when she actually had a temperature of 101°F.

The patient's expert witness stated that on the basis of what occurred after the patient's release from the hospital he could conclude with a reasonable degree of medical certainty that she had a fever at the time of discharge and that this was the proximate cause of the incision opening, necessitating further surgery and scarring. The expert said that it was a departure from sound medical practice for the hospital not to have properly taken and recorded the patient's temperature. The court granted summary judgment for the hospital.

On appeal, the hospital contended that since its records showed that the patient's temperature was duly taken and noted and that no fever was indicated and, further, since no one in the hospital's employ discharged her, because that decision was made by her physician, the patient would not be able to prove a claim at the time of trial. The hospital contended that the lower court was warranted in granting judgment for the hospital.

The appellate court said that whether or not the patient would ultimately prevail in her lawsuit was irrelevant. The court said that the record revealed a clear dispute between the parties as to whether the patient was free from fever when she was released from the hospital and, if she was not, whether the hospital's alleged failure to take her temperature was a departure from sound medical practice and responsible for the surgical complications. The court found that there were sufficient issues of fact to preclude summary judgment.—*DeWanger v. St. Vincent's Hospital & Medical Center of New York*, 499 N.Y.S.2d 81 (N.Y.Sup.Ct., App.Div., March 6, 1986)

Right To Refuse Medical Treatment Upheld

On September 11, 1986, the Supreme Judicial Court of Massachusetts in a four to three decision ruled that the substituted judgment of a person in a persistent vegetative state should be honored to have artificial maintenance of his nutrition and hydration discountinued. The case was transferred from the Appeals Court on the initiative of the Supreme Judicial Court.

The case was filed by the wife of Paul E. Brophy, Sr., who on March 22, 1983 had a ruptured aneurysm at the apex of the basilar artery in the brain. He had been employed as a fireman and emergency medical technician. Surgery on April 6, 1983 was not successful, and Mr. Brophy has never regained consciousness and is in a condition described as a "persistent vegetative state." On December 22, 1983, a gastrostomy tube was surgically inserted and is the device through which he receives nutrition and hydration.

On February 6, 1985, Mrs. Brophy in her capacity as legal guardian for her husband filed a complaint for declaratory judgment in the Probate Court for Norfolk County requesting a judgment granting her the authority to order discontinuance of all life-sustaining treatment for her husband, including artificial nutrition and hydration. A guardian ad litem-investigator was appointed. On October 21, 1985, the probate judge issued extensive findings of fact, conclusions of law and judgment enjoining the removal or clamping of the gastrostomy tube, but permitting the reentry of do not resuscitate and nonaggressive treatment orders on Mr. Brophy's chart. The appeals followed. In setting aside the judgment and remanding for entry of a new judgment, the Supreme Judicial Court sustained the portion of the judgment which respects the right of the hospital to refuse to remove or clamp the gastrostomy tube, but authorizes the guardian to remove Mr. Brophy from the hospital to the care of other physicians who will honor Brophy's wishes.

The court reviewed the common law right of a patient to refuse medical treatment as well as the unwritten and penumbral constitutional right to privacy. The common law's implicit recognition that "a person has a strong interest in being free from nonconsensual invasion of his bodily integrity" is explicit in the Commonwealth according to the court. The court also stated that the right of self-determination and individual autonomy has its roots deep in the history of this country. In earlier cases, this court in recognition of the fundamental principles of individual autonomy sought to shift the emphasis away from a paternalistic view of what is "best" for a patient toward a reaffirmation that the basic question is what decision will comport with the will of the person involved, whether the person be competent or incompetent. Once again applying the doctrine of substituted judgment, the court found it best to emphasize the importance of honoring the privacy and dignity of the individual and that the doctrine must extend to the case of an incompetent as well as a competent patient since the value of human dignity extends to both.

The court also pointed out that it has recognized at least four countervailing State interests that makes the right to refuse medical treatment not absolute in life-threatening situations: (1) the preservation of life; (2) the protection of interests of innocent third parties; (3) the prevention of suicide; and (4) the maintenance of the ethical integrity of the medical profession. The interest of the State in preserving life is very high when the patient's affliction is curable, but wanes when the underlying affliction is incurable, the court noted. The State's interest in preserving life does not focus on Brophy's quality of life, according to the court, and it would be antithetical to the scheme of ordered liberty for the State to make decisions regarding an individual's quality of life. The court's role is limited to ensuring that a refusal of treatment does not violate legal norms.

In the Brophy case, the State's concern for the preservation of life involves a patient who is not terminally ill nor in danger of imminent death. While the gastrostomy tube is not highly invasive, the patient, according to the court, is left helpless and in a condition the patient would consider to be degrading and without human dignity. Citing similar decisions in New Jersey, Florida and California, the court concluded that the State's interest in the preservation of life does not overcome Brophy's right to discontinue treatment. Since he is incapable of swallowing, the discontinuance of the gastrostomy tube feedings will not be the "death producing agent" set "in motion with the intent of causing his own death."

The court also concluded that so long as it declined to force the hospital to participate in removing or clamping the gastrostomy tube there is no violation of the integrity of the medical profession. The court also stated that the position taken in a case such as this is consistent with the view of sound medical practice taken by the American Medical Association, the Massachusetts Medical Society and that of many ethicists and physicians.

Turning to the rights and duties of the hospital, the court agreed with the probate judge that the hospital and its medical staff "should not be compelled to withhold food and water to a patient, contrary to its moral and ethical principles, when such principles are recognized and accepted within a significant segment of the medical profession and the hospital community." The court ruled that a patient's right to refuse medical treatment does not warrant any unnecessary intrusion upon the hospital's ethical integrity in a case such as this.

The dissenting justices disagreed that food and liquids are medical treatment. One justice took the position that the majority endorsed euthanasia and suicide. Another justice found that the majority had not given appropriate weight to the State's interest in preservation of life in that there was no acknowledgement of the State's interest in preserving the sanctity of all human life. The third justice would have affirmed the probate court judgment, since the case does not involve an individual's substituted choice to live for as long as possible without seriously burdensome treatment rather than to undergo such treatment in order to prolong life for a brief and uncertain time. In his opinion, he found that the majority had recognized a right to commit suicide. The justice concluded that: "The court's implicit, if not explicit, declaration that not every human life has sufficient value to be worthy of the State's protection denies the dignity of all human life, and undermines the very principle on which American law is constructed."—*Brophy v. New England Sinai Hospital, Inc.*, 497 N.E.2d 626 (Mass.Sup.Jud.Ct., Sept. 11, 1986)

Commentary

The strong opinions of the majority and dissenting justices portend the difficulty courts will continue to face as controversial cases involving withholding or withdrawal of life-prolonging medical treatment reach them. Four appellate courts and the majority opinion of the Supreme Judicial Court of Massachusetts have considered artificially provided nutrition and hydration to be life-prolonging medical treatment that can be withdrawn in appropriate cases relying in part on the March, 1986 statement of the AMA Council on Ethical and Judicial Affairs.

Final Note

Following the decision of the Supreme Judicial Court of Massachusetts, the court-appointed attorney for Paul Brophy tried unsuccessfully to get three justices of the U.S. Supreme Court to stay the order pending review by the Supreme Court. When the announcement was made that all three refused, Mr. Brophy was moved to Emerson Hospital in Concord, Massachusetts, and died of pneumonia eight days later.

—*B.J. Anderson, J.D.*
Associate General Counsel, AMA

THE CITATION, Nov 1986, Vol 54, No 3.

SPECIAL NOTICES

THE SOUND OF HEALING: MUSIC AND MEDICINE, 1987

This conference will be held on April 25 at Trinity College, Hartford, in the morning, and at the University of Connecticut Health Center, Farmington, in the afternoon.

Contact Cecile Volpi, Continuing Education Coordinator, LG006, University of Connecticut Health Center, Farmington, CT 06032; or call (203) 674-3340.

M.D. Health Plan: Flashbacks

Excerpts from CSMS-IPA Newsletters to CSMS Physicians

WILLIAM A. WHALEN, M.D.

MARCH, 1986

The Connecticut State Medical Society cannot and will not divide and conquer its own member physicians as various outside organizations have done.

APRIL, 1986

It is time for the physicians of this State to create sanity in a mad world of commercial venturism. Heretofore, physician's services have been exploited by fiscal intermediaries for their own financial gain. By forging an organization which is owned, managed, and controlled by physicians, profits previously realized by the intermediaries will be returned to our organization to improve the delivery of care and to maintain a competitive edge. It should be an organization which converts the system back to the main concern of caring for the patient.

We must be ever mindful of the thundering hoofbeats of the giant medical cartels whose grand design is to turn individuals into mere human laboring mechanisms. We must prevent ourselves from being turned into "someone else's creation". Each of us must establish a separate peace as we transform our personal expectations and philosophies into the statewide corporate effort.

MAY, 1986

As physicians look forward to securing the benefits that will accrue to their patients and themselves, they must be willing to make the capital investment required to succeed. Connecticut physicians have already realized the advantage of owning their own insurance company rather than working for someone else's.

Physicians' control over the health care delivery and financing systems is the key, and the only way total control will be accomplished is for the physicians to capitalize a statewide CSMS IPA-HMO.

This CSMS program provides real advantages to physicians to participate as owners, and will allow them to retain their existing fee schedules, patient relationships, and most importantly, to gain control over a statewide prepaid financing mechanism with a vast potential for growth.

JUNE, 1986

The CSMS IPA/HMO will **belong** to CSMS Physicians and to them **alone**. First, CSMS is forming a non-profit subsidiary, which will act as the IPA. The IPA will, in turn, develop the statewide HMO which will provide prepaid health care coverage. The IPA will also be able to contract to provide medical care services to other health care purchasers.

To the patients, it will offer the quality and concern only "my doctor" can assure.

The mission of your CSMS physician leaders is not to wait around and then bewail the emasculation of medicine, but to foresee impending disaster to the profession, and to act to prevent it to preserve your independence.

Your largest source of HMO patients in the coming years will be the statewide HMO dealing with the State's largest employers. You and your CSMS colleagues can own and control that HMO, if you act now, or you can let this narrow window of opportunity slam shut. If you do, resign yourself to spending much of your time in the coming decades working for the huge commercial supermed corporation that owns you, instead of for the physician-directed company that you own.

Who cares more about your patients than you? Yet your patients will also be at risk if non-physician entrepreneurs direct their care instead of you and your colleagues.

> "Every good and excellent thing stands moment by moment on the razor's edge of danger, — and must be fought for."
>
> —H. Ross Perot

JUNE, 1986

We must stop fearing the limitations of the past; we must abandon the cynicism of the present, and finally we must listen to and believe in the long term advantages of a CSMS statewide IPA-HMO. If we do this, and act now, we can have confidence in the future. We will have designed it ourselves.

But the time is short and the outcome is entirely in your hands. You can listen to the forces that seek to profit from your labor as physicians, or you can listen to your CSMS and county colleagues, who again offer you a new and greater measure of professional self-determination. The choice is yours, but the time is now.

WILLIAM A. WHALEN, M.D., of Willimantic is immediate Past President of CSMS and Chairman of the CSMS IPA-HMO Steering Committee.

JULY, 1986

It is in voluntary individual physician ownership of a large health care insurance mechanism that professional independence can be preserved in the HMO setting.

The large insurance cartels have much going for them—money, staff, systems, power—but they are not yet operational here, and they do not have doctors—**we** have the doctors. And they do not have patients—the **doctors** have the patients! Thus by inspiring enough of our members to unite as businessmen, physicians can easily raise the money, hire the staff, buy the systems, and exercise the power that this implies—power to compete in a burgeoning HMO market, to attract patients, to assure the quality of their care, and to control its cost on a prepaid basis, while retaining **medical judgment** as the system's key arbiter, and the physician-patient relationship as its **heart**.

Your intial overwhelming response indicates that the House of Medicine in Connecticut is still a single dwelling, whose rooms will not be peddled piecemeal.

OCTOBER, 1986

In addition, the committee insisted on a one person/one vote standard for all active physicians, and proxy votes for each on specific agenda items, so that **you the physician** would be the voice directing the major affairs of both your IPA and your HMO.

Likewise, in both the IPA and HMO Bylaws, weeks were spent in drafting and discussion to achieve a careful balance between the concerns of the different counties, between primary physicians and specialists, and between the representatives of individuals and those of organized medicine in our state, which has taken the lead in confronting the forces determined to undermine the independence of physicians both as professionals and as businessmen.

As a result, you are the winner **both** ways, with direct input through your own personal or proxy vote, or through your representatives elected directly by you in your county chapter of the IPA. In addition, you can influence policy through your county association and the leaders elected there to represent you on the CSMS Council and House of Delegates, which will elect a lesser number of IPA and HMO directors.

NOVEMBER, 1986

As new consultants and contractors have joined the team, all are impressed with the logic and obvious benefits of a health plan where only doctors are clearly in charge of health care policy and decision-making, and where patients have an unprecedented choice of physicians statewide. This seems to be a "natural concept" that sells itself, uniting the interests of physicians, consumers, hospitals, and employers alike.

Everyone can understand the financial and medical benefits of cutting the middleman out of the physician-patient relationship.

We have appreciated and benefitted from constructive criticism from a number of physician groups, but it is important for you to realize that there are many present and potential commercial competitors who would dearly like to see your M.D. Health Plan go away, or die aborning. They know that the **only** way that that can happen is if the unified physicians of this state can be scared, or even conned, into losing their nerve in the weeks ahead.

You can expect to hear tales of doom and jaundiced opinions coming from such sources. After all, M.D. Health Plan will be a huge baby whale in their private aquarium. So when you hear unkind talk about baby whales from local barracudas, **consider the source**. You can choose to believe those representing corporate third party payers who stand to profit from your professional labors, or you can believe your colleagues at CSMS who have designed your M.D. Health Plan **to cut those costly and unproductive middlemen out** of your relationship with your patients.

Together, you are an unbeatable combination for excellence in prepaid patient care! M.D. Health Plan is an idea whose time has come. You can help make the idea a reality, by putting your name and your check on the line, too—and **soon** enough to make it happen!

DECEMBER, 1986

TIME IS THE KEY

CAN CSMS phsycians achieve such a goal in a short time? The answer is YES—you have done it before. In September of 1984 only 700 CSMS physicians raised over $5 million capital in **three weeks** to launch CMIC, now the state's number one professional liability insurance company. In a matter of weeks last summer, you organized the nation's largest IPA, CSMS-IPA. In January of 1987, three weeks will not be too short a time for **3,000** physicians to raise a similar or greater amount to launch M.D. Health Plan, and preserve their professional independence from outside commercial domination in the coming period of rapid HMO growth.

JANUARY, 1987

You cannot be defeated, doctors, except by yourselves.

A registration statement relating to securities of M.D. Health Plan, Inc. has been filed with the Securities and Exchange Commission, but has not yet become effective. These securities may not be sold nor may offers to buy be accepted prior to the time the registration statement becomes effective. This CSMS IPA-HMO update shall not constitute an offer to sell or the solicitation of an offer to buy, nor shall there by any sale of these securities in any state in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state. These securities are being offered by M.D. Health Plan, Inc. The preliminary prospectus may be obtained from Robert J. Brunell at M.D. Health Plan, 160 St. Ronan Street, New Haven, CT (785-1153). (A copy of the preliminary prospectus was mailed to all CSMS members on December 8, 1986.)

1986 Surgeon General's Report: The Health Consequences of Involuntary Smoking

CENTERS FOR DISEASE CONTROL, ATLANTA

Inhalation of tobacco smoke during active cigarette smoking remains the largest single preventable cause of death and disability in the United States. The health consequences of cigarette smoking and of the use of other tobacco products have been extensively documented in the 18 previous Surgeon General's reports issued by the Public Health Service. More than 300,000 premature deaths that are directly attributable to tobacco use—particularly cigarette smoking—occur each year in the United States. The magnitude of the disease risk for active smokers, secondary to their high dose exposure to tobacco smoke, suggests that the lower doses of smoke received by involuntary smokers also puts them at risk. The 1986 Surgeon General's Report explores the health consequences incurred by involuntary smokers. It was developed by the Office on Smoking and Health, Center for Health Promotion and Education, Centers for Disease Control (CDC) as part of the U.S. Department of Health and Human Services' responsibility under Public Law 91-222 to report new and current information on smoking and health to the U.S. Congress.

Data in the 1986 report present evidence that the chemical composition of sidestream smoke (smoke emitted into the environment by a smoker between puffs) is qualitatively similar to the mainstream smoke inhaled by the smoker and that both mainstream and sidestream smoke act as carcinogens in bioassay systems.[1] Data on the environmental levels of the components of tobacco smoke and on nicotine absorption in nonsmokers suggest that nonsmokers are exposed to levels of environmental tobacco smoke (ETS) that would be expected to generate a lung cancer risk. In addition, epidemiological studies of populations exposed to ETS have documented an increased risk for lung cancer in those nonsmokers with increased exposure. Of the 13 epidemiological studies that were available for review in the scientific literature, 11 reported a positive relationship and six of these observed statistically significant results. It is rare to have such detailed exposure data or human epidemiologic studies on disease occurrence when attempting to evaluate the risk of low-dose exposure to an agent with established toxicity at higher levels of exposure. The relative abundance of data reviewed in the report, their cohesiveness, and their biologic plausibility allow a judgment that involuntary smoking can cause lung cancer in nonsmokers.

The 1986 Surgeon General's Report comes to three major conclusions:

- Involuntary smoking is a cause of disease, including lung cancer, in healthy nonsmokers.
- Compared with children of nonsmoking parents, children whose parents smoke have an increased frequency of respiratory symptoms and infections. They also have slightly smaller rates of increase in lung function as the lung matures.
- Simple separation of smokers and nonsmokers within the same air space may reduce, but does not eliminate, ETS exposure.

The report also reviews policies restricting smoking in public places and the workplace and states that, in the 1970s, an increasing number of public and private sector institutions began adopting policies to protect individuals from ETS exposure by restricting the circumstances in which smoking is permitted. Local governments have been enacting smoking ordinances at an increasing rate since 1980. Restrictions on smoking at the workplace have resulted from both governmental action and private initiative, and an increase in workplace smoking policies has been a trend of the 1980s. Laws restricting smoking in public places have been implemented with few problems and at little cost to state and local governments. Public opinion polls document strong and growing support for restricting or banning smoking in a wide range of public places.

The Surgeon General, in his preface to the report, states, "Cigarette smoking is an addictive behavior, and the individual smoker must decide whether or not to continue that behavior; however, it is evident from the data presented in this volume that the choice to smoke cannot interfere with the nonsmokers' right to breathe air free of tobacco smoke."

Reported by Office on Smoking and Health, Center for Health Promotion and Education, CDC.

Editorial Note: A review recently published by the National Academy of Sciences states that approximately 20% of the estimated 12,200 lung cancer deaths occurring annually in nonsmokers are attributable to environmental

---

—*Morbidity and Mortality Weekly Report*, (Vol. 35, Nos. 47, 50, 1986).

tobacco smoke.[2] This estimate falls close to the midpoint of the range published by Repace and Lowery, who state that between 500 and 5,000 lung cancer deaths may occur annually as a result of nonsmokers' exposure to tobacco smoke.[3] By comparison, figures published in the *Journal of the Air Pollution Control Association*[4] estimate that between 1,300 and 1,700 total cases of cancer resulting from other air pollutants in the general environment occur each year in the United States.[4] Thus, while the number of lung cancer deaths that may be related to ETS exposure is small compared with those caused by active smoking, the actual number of lung cancer deaths caused annually by involuntary smoking is large. In addition, ETS causes more cases of cancer annually than many other agents in the general environment that are regulated because of their potential to cause disease.

REFERENCES

1. Office on Smoking and Health. The health consequences of involuntary smoking: a report of the Surgeon General, Rockville Maryland: Public Health Service 1986.
2. National Research Council, National Academy of Sciences. Environmental tobacco smoke: measuring exposures and assessing health effects. Washington DC: National Academy Press 1986.
3. Repace JL, Lowrey AH. A quantitative estimate of nonsmokers' lung cancer risk from passive smoking. Environ Int 1985, 11:3-22.
4. Thomson VE, Jones A, Haemisegger E, Steigerwald B. The air toxics problem in the United States: an analysis of cancer risks posed by selected air pollutants. J Air Pollut control Assoc 1985, 35(5):535-40.

Workplace Smoking Survey – New York City

During the period May 16-23, 1986, employees of the New York City Department of Health (NYCDOH) participated in a survey regarding smoking practices and attitudes toward a workplace smoking policy. The survey was conducted to obtain baseline information for evaluating the impact of a smoking policy initiated by the mayor and scheduled to be implemented July 1, 1986. It was also intended to familiarize employees with the policy.

Questionnaires were completed by employees who volunteered to attend one of several NYCDOH meetings concerning the mayor's proposed legislation and pending executive order about smoking restrictions. Of the estimated 900 employees in the department's primary office building, 608 attended the meetings, and 496 completed the survey. Thus, 55% of the total employees and 82% of those attending the meetings completed the questionnaire. Of the respondents, 137 (28%) currently smoked cigarettes, eight (2%) smoked pipes or cigars, 333 (67%) were nonsmokers, and 18 (4%) did not answer this question. The female to male ratio of respondents was 2.5:1. Thirty-one percent of the males and 28% of the females were current smokers. Eighteen percent of the smokers smoked a pack or more of cigarettes per day. Sixteen percent of the cigarette smokers reported that they did not smoke at work. Fifty-nine percent of nonsmokers reported at least occasional exposure to tobacco smoke from others in the workplace; 56% of nonsmokers reported at least occasional exposure to tobacco smoke from the visiting public.

Regarding employee attitudes toward smoking in the workplace, 63% of all respondents (26% of smokers and 79% of nonsmokers) reported being annoyed when other employees smoked nearby. Of nonsmokers, 38% reported that, when exposed to tobacco smoke, they would like to ask smokers to stop but are hesitant to do so. Thirty-three percent of nonsmokers reported that they were able to work without noticing smoke. Twenty-nine percent reported that they try to move away when other employees smoke. Overall, 82% of the respondents (including 69% of smokers) indicated that smoking in the workplace should be either limited (65%) or banned (17%). Most respondents indicated that restricting smoking in the NYCDOH would have no adverse effect on relations among their co-workers (87%), on their job performance (94%), or on their office morale (90%). Of current smokers, 46% indicated they would quit or reduce their smoking if workplace smoking were restricted.

Reported by KJ Denard, MS, MK Bradstock, MD, MPH, P Clarke, MPH, Div of Health Promotion, SC Joseph, MD, MPH, New York City Dept of Health; Div of Environmental Hazards and Health Effects, Center for Environmental Health, Div of Health Education, Center for Health Promotion and Education, Epidemiology Program Office, CDC.

Editorial Note: The control of smoking and tobacco smoke exposure in the workplace has become an important public health issue in the United States in recent years. No studies have yet quantified the nonsmoking worker's risk of lung cancer from chronic exposure to tobacco smoke in the workplace. However, numerous studies have documented that nonsmoking wives of smoking men have a risk of lung cancer that is between 14% and 34% higher than that of wives of nonsmoking men.[1] In addition, it has been shown that employes exposed to sidestream tobacco smoke in the work environment are at greater risk of developing small airways dysfunction than are nonexposed employees.[2] Small airways disease, which is the first pathological change seen in beginning smokers,[3] may increase the risk of developing disabling chronic airways obstruction.[4]

As a consequence of data such as these concerning the effects of sidestream tobacco smoke exposure, an increasing number of employers have instituted policies to control smoking in the workplace. While some policies and control measures have been adopted voluntarily, others have been required by legislative actions. There are already laws in 17 states and ordinances in at least 100 localities regulating workplace smoking (Office on Smoking and Health, unpublished data). In one recent national survey, 36% of 662 responding employers reported having established workplace smoking policies; an additional 2% planned to enact policies by the end of 1986, and 21% reported that policies were under consideration.[5]

Despite the voluntary nature of the NYCDOH survey, the results are consistent with previously reported findings concerning employee knowledge, attitudes, and smoking practices in the workplace.[6-10] Since this represents 55% of total NYCDOH employees, however, these results should be interpreted with caution. Smoking prevalence among respondents in this survey (28%) is similar to the estimates of national smoking prevalence (30%).[11] It is also similar to the prevalence reported for white collar workers (32% of females, 33% of males)[12] and for those in a surveyed private workplace (33%).[6]

In most surveys, the majority of respondents have approved of some limitation of smoking in the workplace.[6-10] A nationwide survey commissioned by the American Lung Association[13] asked 1,540 randomly selected individuals whether companies should have a policy on smoking at work. Eighty-seven percent of all respondents—including 80% of smokers—indicated that smoking in the workplace should be limited. Surveys of employees at individual workplaces have provided similar support for smoking restrictions. For example, 74% of employees at a large health maintenance organizatin approved of a smoking prohibition policy 4 months after implementation of the policy.[7] In another survey, 71% of all employees indicated that smoking in the immediate work area should be restricted (80% of nonsmokers and 51% of smokers).[6]

Policies limiting smoking in the workplace not only protect nonsmokers from the health effects of passive smoking but also may encourage smokers to quit or reduce smoking. In one survey, 51% of the employees who smoked indicated that workplace smoking regulations might prompt them to reduce smoking or try to quit smoking completely.[6] In the NYCDOH survey, the majority of participating employees were in favor of restricting smoking in the workplace.

REFERENCES

1. National Research Council. Passive smoking. Washington DC: National Academy Press 1986.
2. White Jr, Froeb HF. Small-airways dysfunction in nonsmokers chronically exposed to tobacco smoke. N Engl J Med 1980, 302:720-3.
3. Niewoehner DE, Kleinerman J, Rice DB. Pathologic changes in the peripheral airways of young cigarette smokers. N Engl J Med 1974, 291:755-8.
4. Ingram RH. Chronic bronchitis, emphysema and airways obstruction. In: Petersdorf RG, Adams RD, Braunwald E, Isselbacher KJ, Martin JB, Wilson JD, eds. Harrison's principles of internal medicine. 10th ed New York: McGraw-Hill Book Company 1983, 1546.
5. Bureau of National Affairs, Inc. Where there's smoke: problems and policies concerning smoking in the workplace. Washington DC: Bureau of National Affairs 1986.
6. Pacific Telephone and Telegraph Company. Employee smoking study (project no. 82-63). San Francisco: Pacific Telephone Company, January 1983.
7. Rosenstock IM, Stergachis A, Heaney C. Evaluation of smoking prohibition policy in a health maintenance organization. Am J Public Health 1986, 76:1014-5.
8. Martin MJ, Silverman MF. The San Francisco experience with regulation of smoking in the workplace: the first twelve months. Am J Public Health 1986, 76:585-6.
9. Sorensen G, Pechacek T, Pallonen U. Occupational and worksite norms and attitudes about smoking cessation. Am J Public Health 1986, 76:544-9.
10. Anonymous. Other people's tobacco smoke (Editorial). Lancet 1986, 1:752.
11. Thornberry OT, Wilson RW, Golden PM. Health promotion data for the 1990 objectives. Estimates from the National Health Interview Survey of Health Promotion and Disease Prevention, United States 1985. In: National Center for Health Statistics. Advance data from vital and health statistics, Hyattsville Maryland: National Center for Health Statistics 1986; DHHS publication no. (PHS) 86-1250, no. 126.
12. Office on Smoking and Health. The health consequences of smoking—cancer and chronic lung disease in the workplace: a report of the Surgeon General, Rockville Maryland: Public Health Service, 1985. DHHS publication no. (PHS) 85-50207.
13. American Lung Association. Gallup survey (Press release). New York: American Lung Association, December 5, 1985.

Smoking and Health: A National Status Report

When the comprehensive Education Act, Public Law 98-474, was signed into law in October 1984, it was the first major smoking and health legislation enacted by the Congress in over 15 years. The law required that all cigarette packages and advertising include four new health warnings and that these warnings be rotated quarterly. These new warnings replaced the single statement that had appeared on packs and in advertising since 1970.

The legislation also required the Department of Health and Human Services to undertake significant new activities, including a biennial report to Congress. On Nov 20, 1986, the Department issued the first of these reports. 'Smoking and Health: A National Status Report' provides significant new information on smoking and health at the national, state, and local levels.[1] A summary of key findings is presented below.

Smoking Prevalence 1955-1985

By 1985, 21 years after the first report of the Surgeon General's Advisory Committee, smoking prevalence rates in the United States had declined to the lowest level observed in nearly 40 years. Only 30% of all persons greater than or equal to 18 years of age now smoke cigarettes on a regular basis. This figure is down from nearly 45% at the time of the Advisory Committee's report in 1964.[2]

Smoking rates for men have declined more rapidly than smoking rates for women (Figure 1). In the early 1960s, male cigarette-use rates were well above 50%. In 1985, male smoking prevalence had decreased to 33%—probably the lowest rate among men in this country at any time except prior to World War I. From the mid-1960s to 1985, female smoking rates declined from 34% to 28%. However, the gap between male and female smoking is nar-

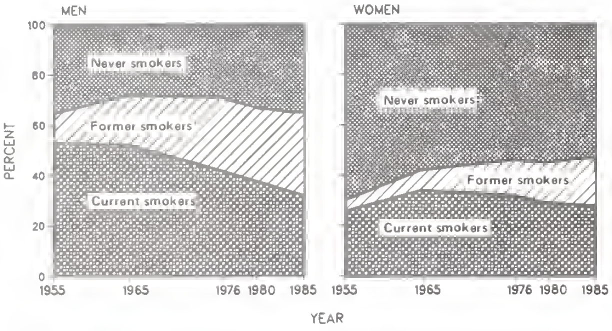


Figure 1
Percentage of current, former, and never smokers, by sex and year, United States, 1955-1985.

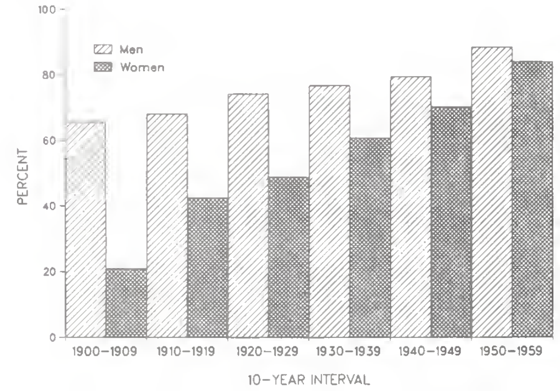


Figure 2
Percentage of persons initiating smoking before age 20, by sex and 10-year birth cohorts, United States, 1900-1959.

rowing. When lifetime smoking prevalence is examined by birth cohort, it is clear that, among contemporary age groups, there no longer exists a significant difference between men and women either in initiating smoking or in regular use of cigarettes.

Age of Initiation of Regular Cigarette Smoking

Data from the National Health Interview Survey shows a narrowing of the average age of initiation between men and women. Cigarette smoking among men began to increase around the turn of the century, and, by World War I, large numbers of men were smoking cigarettes. Women, however, did not begin to smoke in significant numbers until some 25 years later—just prior to and during World War II.

In more recent birth cohorts, the overwhelming majority of both men and women began smoking as teenagers. For the cohorts born from 1940 to 1949 and from 1950 to 1959, there is little difference in the proportion of men and women who began regular smoking before their 20th birthday (Figure 2). For the cohort born from 1950 to 1959, 88% of male and 84% of female ever smokers had initiated their behavior before age 20. Few adults initiate and adopt the behavior on a regular basis after age 20.

Reports of the Surgeon General and others have consistently noted a strong dose-response effect between smoking initiation at an early age and mortality from all the major smoking-related diseases, including cancer, cardiovascular disease, and chronic obstructive lung disease. The current report also states that the earlier a person begins to smoke as a teenager, the less likely to quit smoking as an adult and the more likely to be a heavy smoker.

State Legislation on Smoking and Health

The new report contains a complete review of all state legislation on smoking and health. One of the major findings relates to sales and distribution of cigarettes and other tobacco products to minors. The majority of states (38) have enacted legislation restricting the sale or distribution of tobacco products to minors. However, 12 states have no such laws, and 14 of the states with restrictive legislation have set the minimum age for purchasing tobacco products at less than 18.

The Secretary of Health and Human Services, Dr. Otis Bowen, in his letter transmitting the report to the Congress, strongly urged all jurisdictions to adopt 18 as the minimum age at which any person should be allowed to purchase tobacco products. Concerning laws that impede the sale or availability of tobacco products to minors, Dr. Bowen wrote, 'Enactment and enforcement of such legislation could have a strong preventive effect on early uptake of cigarettes and other tobacco products.'

Reported by Office on Smoking and Health, Center for Health Promotion and Education, CDC.

REFERENCES

1. CDC. Smoking and health. A national status report. Rockville, Maryland: Public Health Service, 1986; DHHS publication no (CDC) 87-8396.
2. National Center for Health Statistics. Health promotion and disease prevention provisional data from the National Health Interview Survey: United States, January-June 1985. Advance Data 1986, 119:1-14.

Editorials

M.D. Health Plan: Physicians in Charge

Elsewhere in this issue Dr. William A. Whalen, Past President of the Connecticut State Medical Society and now Chairman of the CSMS Steering Committee, has put together excerpts from newsletters which have been sent to CSMS physicians during the past year. These excerpts emphasize the importance of physician control of policy in the M.D. Health Plan, Inc.; in the paragraphs taken from the November 1986 newsletter we read of the "obvious benefits of a health plan where only doctors are clearly in charge of health care policy and decision making—."

The confusing spectacle of "alternative delivery systems" which has appeared in the past few years is enough to make most of us and our patients cynical about all of them; add to this the unpleasant change in the words which have come to be used to describe what we and the hospitals are doing, such as market share, product line, health care industry, providers, consumers, clients, and the like, and we come close to despair for the future of our profession.

The changes through which medicine is going may indeed be paradigmatic, as some have said, and very likely represent the organizational and social counterpart of the biomedical revolution of the past century, and more especially, of the past 50 years. The old bottles simply will not hold the new wine. The scientific, technologic, economic, and social factors driving the changes are multiple and complex, precluding any reliable prediction of how it will all work out in the end.

Someone once reminded me when we were considering several courses of action that all things do "work out in the end—one way or another!" And of course that is the problem: one way is not as good as another.

Medical care has come to represent a very large segment of what our society is and does, whether measured by percentage of the national product, total cost, capital investment, people employed, or effect on the quality of our lives. Entrepreneurs from the worlds of business and government have riveted their attention upon us and all that we do, either because of costs, diversion of the market, or opportunities for profits. Their interests are less often in the quality of care than in that to which they habitually and properly direct most of their effort, the bottom line.

But the purposes of medicine have not changed; its objectives continue to be the relief of suffering, the prevention and cure of disease, the advancement of health, and the increase of biomedical knowledge. Together these comprise our ultimate concern; if others seek to use the science and art for other purposes, as physicians our obligation and right is to determine whether those purposes support or conflict with what we and our patients have defined as the work of medicine. Being in charge of the enterprise, or at least holding the controlling vote, is the only way we can continue to be responsible for this work and service.

Any enterprise undertaken for the provision of medical services from which we physicians derive our livelihood carries the risk of conflict of interest, apparent or real. That risk becomes a certainty when someone else stands to profit from the care of the sick, and is at the same time in administrative control. The characteristics of altruism and beneficence which have been identified with the health professions will assure that, whatever form the organization of care may take, if these professions remain in charge, the interests of the patients will come first.

Our best wishes to M.D. Health Plan, Inc., its doctors and patients!

R.U.M.

Medical Courtesy Card Program

As this issue of *Connecticut Medicine* goes to press, 74% of the eligible CSMS physicians have agreed to participate in the Society's Medical Courtesy Card Program, and the number has been increasing each week. Fewer than 900 members remain to be heard from; almost 3000 have already signed up, and only 4% have indicated unwillingness to be part of the program. In Tolland County 96% of the eligible members have said yes.

The response from physicians has been a good one, but also expected. The task now for the Society is to reach out to the approximately 210,000 older citizens in the state who are eligible for courtesy cards and to assure them that their needs for physician care will be met. This is a reassuring message at a time when there are widespread fears that health care may have gone commercial.

R.U.M.

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

AIM HIGH

A PRESCRIPTION FOR PHYSICIANS

BOTHERED BY:

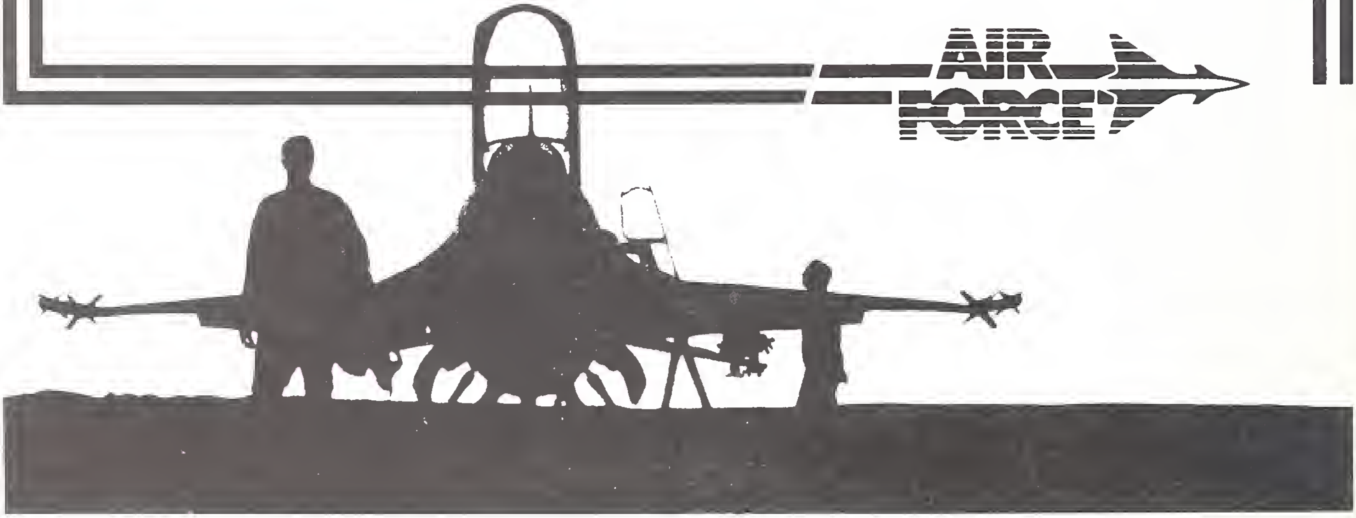
- ★ Too much paperwork?
- ★ The burden of office overhead?
- ★ Malpractice insurance costs?
- ★ Not enough time for the family?
- ★ No time to keep current with technology and new methods?
- ★ No time or money for professional development?

**JOIN THE AIR FORCE MEDICAL TEAM;
WE'LL PROVIDE THE FOLLOWING:**

- ★ Competent and dedicated professional staff.
- ★ Time for patients and for keeping professionally current.
- ★ Financial security, a generous retirement for those who qualify.
- ★ If qualified, unlimited professional development.
- ★ Medical facilities all around the world.
- ★ 30 days of vacation with pay each year.
- ★ Complete medical and dental care.
- ★ Low cost life insurance.

Want to find out more? Contact your nearest Air Force recruiter for information at no obligation. Call

SSgt Joe Laferriere
203-745-1128 collect



The President's Page

Reflections

As I prepare this article for *Connecticut Medicine*, the year of 1986 is drawing to a close. My thoughts are of the momentous events that took place in 1986 and what the future portends.

What has passed, like a laxative, has not gone down easily and the end results are not yet predictable. Our HMO license application is awaiting approval by the Insurance Commissioner and our stock prospectus is before the S.E.C. (Security Exchange Commission). Their registration is needed before we can begin selling the stock. This event like "Exlax" hasn't been hard to swallow. The concept of possessing our own HMO is exciting. The innovative approach to health care delivery (open access) and the modification of the reimbursement mechanism (usual and customary with a cap and redistribution of withhold) is unique in the insurance field, yet not much different than our traditional mode of practice (without the redistribution). It spite of this, there has been grumbling amongst our members that this system will never work, that we cannot and will not be competitive. The marketability of this plan should be great, and if physicians put their efforts behind it and forget petty differences, its success is almost assured.

A more harsh cathartic this past year, the results of which we won't know for some time, is the problem of mandatory medicare assignment and tort reform. These two issues are of the "Citrate of Magnesia" variety, a little stronger, but not as tasty. We really can't afford to swallow these two thorns. An all out effort by the entire medical community must be made to turn back the assignment issue. *We* all agree that it violates the basic tenets of our constitution but the courts have not taken that view. A long hard struggle through the judicial system is in the offering, and by the time it is settled, the point might be moot. So, my friends, remember the courtesy card program and participate in it. There are no guarantees it will work, but we do know the alternative.

Tort reform will be interesting this year. I have a copy of a letter from Mr. Robert Clark to the Insurance Commissioner. Mr. Clark is the president of Aetna's Commerical Insurance Division. In this letter, Aetna pointed out that they were the largest writer of commercial lines of insurance in Connecticut. Because of the tort reform enacted in this past legislature, Aetna was going to forego an increase in automobile insurance rates that had been planned. The savings to Connecticut motorists and businesses would be in excess of $1 Million. Mr. Clark also pointed out that Aetna planned to provide additional non-planned growth in the commercial insurance market. This will result in an exposure growth in Connecticut at a level which is double Aetna's national average. In addition, Mr. Clark pointed out that, based on the Connecticut tort reform law, their analysis of the impact made it possible to reduce rates for commercial general liability insurance in Connecticut and forego a planned increase which will result in an additional savings of approximately $1.7 Million for Connecticut businesses. The preceding information certainly shows a positive response to the already enacted laws. The Task Force on Tort Reform will have to see that we don't destroy this auspicious beginning and strive for further meaningful reform. This will not be an easy task, considering the makeup of the committee.

Now to the "Castor oil." All of you have received the latest missive from HCFA via the Insurance intermediary. I will venture that nobody can interpret these regulations. The CSMS staff has been meeting with the carrier in an effort to translate the "bureaucratese" into understandable English. I hope by the time you read this, we will have been successful.

A double dose of the above cathartic is the compromise between the Reagan administration and the HHS on DRG'S. Dr. Otis Bowen was opposed to this plan, and while the White House wanted all physicians fee for hospital services handled this way, ie: a single lump sum paid to the hospital, a compromise was reached. Under the new plan radiologists, anesthesiologists, and pathologists will be the only physicians affected. This agreement has not met with much favor in the medical community and rightly so. The feeling is that this is just the beginning of another bloody fight.

Somewhere in the distant past I remember reading a book that began "It is the best of times, it is the worst of times .... ".

Joseph C. Czarsty, M.D.
President

the new DIRECTIONS in medicine

Consider a few features of **The Western Journal of Medicine:**

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

WJ1/87

Enclosed is $______ to cover ______ subscriptions.

Subscription renewal ☐ Regular subscription ☐

Foreign subscription ☐

TO: ____________________

Street ____________________

City/State/Zip ____________________

Specialty ____________________

Gift Card to read "From____________________"

The Western Journal of Medicine

Please mail this coupon with
enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year
$90 2 years

Reflections on Medicine

In Praise of Being Amateur

ROBERT U. MASSEY, M.D.

"Obviously the amateur will only indulge in so seemingly desiccated a pursuit if he enjoys it, and in the end no further justification need really be demanded."[1] Sir Geoffrey Keynes was writing of his passion for bibliography, only one of his several pursuits, but what he had to say about playfulness in scholarship implied a gentle censure of some of the darker aspects of professionalism.

I first learned about Geoffrey Keynes, M.D., F.R.C.S., over 50 years ago; he had edited and written the introduction to an edition of Sir Thomas Browne's *Religio Medici* which my father had in his library, and which I was reading, along with a number of other books about doctors, during an early romantic encounter with medicine.

Years later I read his excellent biography of William Harvey in preparation for a talk on the author of *De Motu Cordis*, and discovered in addition his *Portraiture of William Harvey* from which I made some slides. At some time in the past ten years I came to realize that Sir Geoffrey Keynes was the younger brother of John Maynard Keynes of Keynesian economics fame. His final book, *The Gates of Memory*, was published in 1982, only a year before his death at the age of ninety-five. This delightful autobiography which reaches back from our decade into Victorian times celebrates a surgeon's life, but more especially the joys of amateur status, for Keynes was bibliographer, biographer, medical historian, art collector, wood worker, and *litterateur*. Nonetheless, until the end of his seventh decade he was first of all a surgeon: "Though my friends had often thought that literature and bibliography were my first loves, in reality it had been the other way round. My most intense interest had been in the science and practice of surgery . . ."[2]

His contributions to surgery were not inconsiderable. Following World War II, during which he had served in the R.A.F., first as Group Captain, later as Acting Air Vice-Marshall, he returned to his old hospital, St. Bartholomew's, as Senior Surgeon; he was a "man of Bart's" as William Harvey had been over 300 years before.

During the First World War, as medical officer in the R.A.M.C., he had pushed for the use of blood transfusions to reduce mortality from wounds, and had developed a drip-feed apparatus for controlling the rate of flow. The original work on the use of citrated blood had been an American development; Keynes learned it from a Harvard Medical School group in France in 1917. Shortly after the war his interest turned to the problem of breast cancer, and in 1922 he began to use radium needles, initially for those patients who were deemed inoperable, but later he abandoned entirely the radical Halsted approach: "From 1929 onward I was publicly advocating conservative treatment for carcinoma of the breast."[3] This involved him in many bitter controversies with his surgical colleagues, yet the 1982 edition of Garrison and Morton's *A Medical Bibliography*, lists his 1932 *British Journal of Surgery* article, "The radium treatment of carcinoma of the breast," among those texts which best illustrate the history of medicine.

While in the R.A.F. in 1942, he performed the first thymectomy in Great Britain for myasthenia gravis, following the lead of Alfred Blalock at Johns Hopkins in 1939. "By 1954 he had amassed the largest series of thymectomies in the world."[4] At the recommendation of the Royal College of Surgeons the Queen honored him with knighthood in 1955.

Nevertheless Keynes remains far better known to us for his amateur pursuits than for his work as a surgeon. Although more than once criticized by professional bibliographers for his "impure" scholarship and his rejection of some of the rules, he remained undaunted. "I preferred to give readers less pedantry and more humanity . . ." and he added, "In the ensuing years my 'impure' productions have continued to be in demand."

Increasingly the work of scholarship demands the skill and dedication of professionals, but unfortunately for the rest of us, professional scholars talk and write largely for one another whom they often regard more as competitors than as colleagues; worse yet they become deadly serious and possessive about the diminishing area of intellectual activity which they have staked out for themselves. The amateur on the other hand is there for the fun of it; his scholarship, though serious, retains a playful quality which invites us to return again and again to the joy of learning, "and in the end no further justification need really be demanded."

REFERENCES

1. Keynes G. The Gates of Memory. Oxford Univ Press 1983, p 374.
2. Ibid, p 307.
3. Ibid, p 216.
4. Eaton LM, Clagett OT. Present status of thymectomy in the treatment of myasthenia gravis. Am Jour of Med 1955, 19:703-717.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

“SELLING PRACTICES
IS OUR BUSINESS’

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping doctors buy and sell more than 100 practices. We guide them through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902

NEW YORK FERTILITY
RESEARCH FOUNDATION, INC.
For the Investigation of Problems of
Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

BASIC
WALLPAPER
INC.

THE CONNECTICUT SOURCE FOR
COMMERCIAL WALLCOVERING

BEST SELECTION
BEST PRICE
BEST DELIVERY

SPACE PLANNING & COMPLETE
INTERIOR DESIGN SERVICES
AVAILABLE FOR YOUR OFFICE

35 MAGEE AVE STAMFORD **359-3188**

MATERIAL printed in *Connecticut Medicine*, the Journal of the Connecticut State Medical Society, is covered by copyright. Written permission must be obtained before reproducing, in part or in whole, any material published in *Connecticut Medicine*.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

PROSPECTIVE authors preparing manuscripts for submission to *Connecticut Medicine* should consult “Information for Authors.” This material may be obtained from the *Journal* office. The manuscript, including references, should be typed double spaced; all material, including figures, should be submitted in duplicate. The transmittal letter should designate one author as correspondent and include his complete address and telephone number.

MANUSCRIPTS should be submitted to the Editor, Robert U. Massey, M.D., *Connecticut Medicine*, 160 St. Ronan St., New Haven, CT. 06511. Manuscripts are received with the explicit understanding that they are not simultaneously under consideration by any other publication.

ALTHOUGH all advertising material is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

REPRINTS are available at an established schedule of costs. A reprint rate and order form is sent to the author with his page proofs.

SUBSCRIPTION RATE: The subscription price per year for members of the Connecticut State Medical Society is included in the annual membership dues. The subscription price per year for nonmembers is $15.00 (Canada and foreign, $30.00). Single copies $2.50.

ADDRESS editorial and business correspondence to:
Connecticut Medicine, 160 St. Ronan St., New Haven, CT. 06511. Tel. (203) 865-0587.

CONNECTICUT MEDICINE is the official publication of the Connecticut Medical Society, a voluntary non-profit association organized for scientific and educational purposes, published monthly for members of the Connecticut State Medical Society.

BOOK REVIEWS

Doctors, Patients, and Placebos

By Howard M. Spiro, M.D., New Haven and London, Yale University Press, 1986. 261 pp. $27.50.

As a leader in the field of gastroenterology for many years, Dr. Spiro has had considerable influence upon a large number of students and physicians. With the writing of this book, his thoughtful insights and observations now have the opportunity of being appreciated by a wider audience.

Although suggesting several definitions of placebo therapy, the author expresses a preference for the one stated by Howard Brody—"a form of medical therapy, or an intervention designed to simulate medical therapy, that is believed to be without specific activity for the condition being treated and that is used. . .for its symbolic effect." Within the context of this interpretation, Dr. Spiro discusses medical interventions, the use of tests and images, faith healing, folk medicine, holistic and alternative medicine, medical anthropology, the history of placebos, and personal accounts by patients such as Norman Cousins and Franz Ingelfinger.

The material in this book will probably not be swallowed in its entirety by all readers without considerable regurgitation and rumination (the choice of these words in relation to the author's specialty is fortuitous). However, older physicians in practice will find comfort in the description of the "intuitive" approach that they have been successfully honing for years, "intuitive" being defined as knowledge which is non-measurable and non-quantifiable. These physicians will also appreciate the references to patient and physician loyalty and to the discussion of how physicians themselves may be therapeutic modalities. Young physicians and students, exposed as they have been in more recent years to humanistic concerns in medicine, could benefit from this book as a supplement to the standard scientific format of their training programs. Indeed, this possible application of the book might be one of its most useful and original. The large group of physicians in their early and middle years of practice will also find much within these pages that the pressures of daily clinical practice have made them forget, and that their patients in all likelihood would appreciate their recalling.

An additional sampling of the many topics discussed by Dr. Spiro includes—the thoughts of a physician when administering a placebo, the effects of tests and procedures as placebos, the placebo effect upon the disease itself as distinct from the response of the patient to the placebo, the possibility of being able to recognize a placebo-receptive personality, objections to the use of a placebo, and indeed, the guilt often felt by physicians in using placebos, no doubt a reflection of training based upon the scientific model. In addition, repeatedly and carefully, the author distinguishes between treating diseases, in which physicians are knowledgeable, and treating illnesses and suffering—pain being the prime example—in which physician training and experience is often inadequate.

The author cautiously sums up his indications for placebo therapy—"There is a place for the placebo, but it is, after all, a small place. A placebo should be prescribed only after careful clinical evaluation, after explanation and reassurance and the launching of a diagnostic plan, if one seems necessary. There are people who need and benefit from this tangible sign of help. But the physician must give more than the prescription when he orders a placebo, he must give himself, or at least try, for the placebo stands as another kind of symbol, of all that the physician does that is not quantifiable, and that is what this book is all about."

Doctors, Patients, and Placebos is readable, sensible, useful and highly recommended for all physicians who have a sense of responsibility for the well-being of their patients. Perhaps its significance is even greater in these times when a changing attitude towards medical care is not only eliminating that which was wrong in the past, but also, unfortunately, sacrificing much that was good. However, as Dr. Spiro notes, perhaps with a touch of bravura and optimism—"We can have it both ways, science and intuition, reason and romanticism. Both-and, not either-or. There is room for both in medicine. . ."

Martin Duke, M.D.
Manchester, CT

Attending in Cardiology,
Manchester Memorial Hospital;
Assistant Clinical Professor,
Department of Medicine,
University of Conn. School of Medicine,
Farmington, CT.

The Hawk's Nest Incident: America's Worst Industrial Disaster.

By Martin Cherniack; foreword by Philip Landrian and Anthony Robbins. New Haven: Yale University Press, 1986. X + 194 pp.; index and illustrations. $19.95.

Between late March, 1930, and September, 1931, several thousand workers, most of them black migrants, were employed to tunnel beneath Gauley Mountain in West Virginia. The object of their labor was to divert water from the rapidly flowing New River into hydroelectric generators. The generators were to be operated by the New Kanawha Power Company, actually a legal front for Union Carbide, which planned to use all of the electricity for a large metallurgical plant at Boncar (now Alloy), West Virginia. The plant was to produce ferrosilicon alloy, a product much in demand in the days when the United States still had a steel industry.

There was one catch. The route of the Hawk's Nest tunnel was through sandstone with an extremely high silica content. From Union Carbide's point of view, this was an advantage. The siliceous rock extracted from the tunnel was of considerable commercial value, and the company shipped tons of it from the excavation to the site of its Boncar plant, in anticipation of future use. Indeed, there is evidence that Union Carbide ordered its construction firm, the Rinehart and Dennis Company, to make portions of the tunnel wider than necessary, in order to recover more of the silica-bearing sandstone.

The bonus for Union Carbide proved to be a disaster for the tunnel crews. Working ten-hour shifts in the bowels of Gauley Mountain, drilling, blasting, and loading the stone, they were exposed to extraordinarily high levels of respirable silica. By some accounts, the tunnel was so dusty that the men could see only a few feet ahead. Within months of the project's commencement, workers began to sicken and die, victims of acute silicosis or its attendant infections, pneumonia and tuberculosis. This was of little concern to the contractors, for there was a large pool of desperate, unemployed men waiting to take the place of those who fell. Despite the human toll, the Hawk's Nest tunnel was finished ahead of schedule, and has functioned without interruption through four decades of continuous use. It is, as Martin Cherniack puts it, a double monument: to the skill of the engineers who planned it, and to the ruthlessness of the businessmen who built it, seemingly indifferent to the lives of their employees.

Cherniak tells this cautionary tale as a mystery—or, to be more precise, as three mysteries in one. The first mystery concerns the conditions in the tunnel and the migrants' camps. Were they as bad as the surviving workers, hundreds of whom subsequently sued Rhinehart and Dennis, claimed they were? Or were they exaggerated to strengthen the positions of the plaintiffs in the ensuing litigation? A second, and related mystery is how many workers died? This is an especially difficult problem, since (1) silicosis can kill years after initial exposure; (2) the migrant workers who survived through 1931 almost immediately left the area and could not be traced; (3) many of the workers who did not survive were buried in a hasty and clandestine manner; and (4) important pieces of the historical and epidemiological records have been lost or possibly distorted. Finally, there is a Watergate-style mystery: what did the corporations responsible for the undertaking know and when did they know it? Did the deaths occur through the ignorance of Union Carbide and its contractors, or through something worse?

The evidence concerning working conditions is contradictory. The drills, for example, had attachments for water hoses, and the Rinehart and Dennis staff contended that the drilling was done "wet," to suppress the dust. The workers, however, swore that the drilling was predominantly "dry," and that they frequently left the mine so covered with dust that the color of their faces could not be distinguished from that of their clothes. Cherniack hypothesizes that the contractors neglected wet drilling and other safety measures because they were anxious to complete the project as quickly as possible. The sooner they tunneled through, the less their costs for labor, and the greater their overall profit.

Rather than dismiss outright the supervisors' claims that safety precautions were followed, Cherniack undermines them statistically. "Even in 1930 silicosis was a preventable disease," he observes. "Therefore, a reasonable estimate of the number of deaths attributable to work on the tunnel offers an indirect but telling test of the companies' concern for the workers' health and safety" (p. 51). But, because of the evidential problems just mentioned, Cherniack had to arrive at a mortality estimate in roundabout fashion. He looked first for excess deaths among working-age males in Fayette County, West Virginia, where the project was located. Between 1930 and 1937 he found that the mortality rates for local men were abnormally high in comparison to nearby mining counties, especially for black men and especially for respiratory diseases. (Silicosis was often misdiagnosed as pneumonia, influenza, or tuberculosis, and so recorded on death certificates.) Finding no other plausible explanation for the heightened mortality—death rates for respiratory diseases were actually declining in comparable areas while they were going through the roof in Fayette County—Cherniack concludes that the silica was probably responsible, and that as many as 63 percent of the laborers at risk had died by 1937. Assuming that the rate was just as bad for the nonlocal migrant workers, he conjectures that "within five years after its completion, the Hawk's Nest Tunnel would have claimed a total of 764 victims to silicosis, or to other less provocatively named causes of death from dusty lungs" (p. 104). Because the assumptions of his epidemiological analysis are conservative, 764 appears to be a minimal, rather than a maximal, figure. So much for the contractors' protestations of safety.

Did they know they were killing their workers with silicosis? Company officials later testified that they were unaware of the danger. Cherniack finds their claim implausible, since there was by 1930 a substantial body of medical literature on the disease. Either the companies' ignorance was so gross as to constitute criminal negligence, or they knew but simply did not care. The latter explanation is suggested by one particularly damning detail: respirators were issued to engineering staff when they went into the tunnel, but not to the crews who daily labored there. The dimensions of the tragedy were configured throughout by race and class. Blacks toiled at the most dangerous jobs inside the dusty tunnel; they also received lower wages than whites and smaller compensations when their law suits were settled out-of-court. It should be pointed out, however, that no one, white or black, made out particularly well during the legal proceedings. After costs, the typical plaintiff (or his heirs) received less than four hundred dollars. Many plaintiffs received nothing at all.

Cherniack is angry about all this. As a physician and former researcher at the National Institute for Occupational Safety and Health, now an assistant professor in Yale's Occupational Medicine Program, his sympathies naturally lie with the workers. He has, however, conscientiously tried to evaluate conflicting evidence, and admits ambiguity where ambiguity exists. He writes with uncommon elegance and clarity, and with a fine sense of irony. Because it is structured as a mystery, and because it is so lucid, *The Hawk's Nest Incident* is a page-turner. There are not many works on occupational health of which this can be said.

In short, a splendid achievement. Yale University Press has made a good book even better by including sixteen pages of illustrations and photographs. My only reservation concerns the subtitle, "America's Worst Industrial Disaster." This is misleading. The Hawk's Nest affair was a construction project that was secondarily concerned with extracting ore. Nor was it the worst such episode in our history. The building of the Central Pacific Railroad, another construction project that involved extensive tunneling, took the lives of thousands of Chinese laborers. Conditions were so bad in the Donner Pass camps that coolies were forced to huddle together like seals for warmth, separated from twenty-foot snow drifts only by the thin canvas of their tents. The bones of 1200 Chinese workers were shipped back to China; no one knows how many more lie in unmarked western graves. The record of the Panama Railroad, built by an American company during 1849 to 1855 was, if possible, worse. At one juncture the death rate for the work crew hit twenty percent per month. The physician who ran the railroad's hospital, Dr. J.A. Totten, accumulated so many unidentified bodies that he pickled them in large barrels, and then sold them in wholesale lots to medical schools all over the world. The profits so earned made the hospital self-sustaining throughout the construction years.

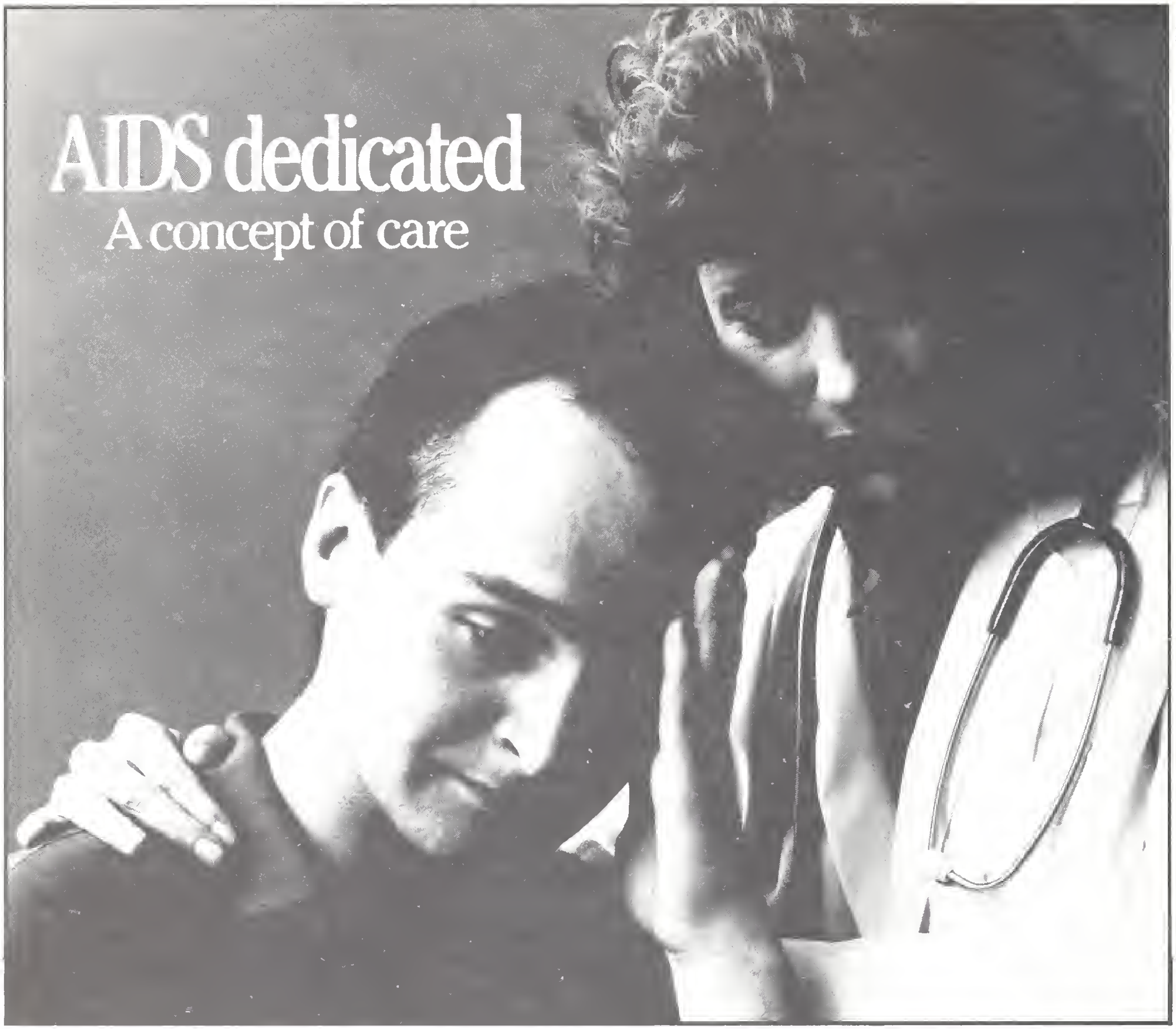
I do not mean to quibble over whether the Hawk's Nest debacle should be called the "worst" in American history; the important point is that what happened there was continuous with and representative of a long history of mortal labor exploitation in the Americas. Within a century or so of the Columbian voyages, the New World was a relative demographic vacuum, due to the microbial decimation of the indigenous population and the thinness of European settlement. Getting things done – growing tobacco, for example, or building transportation facilities – meant importing workers. Hence the widespread use of indentured servants, slaves, and immigrant labor gangs. These workers, mainly young, unattached males, were regarded as expendable; they were also treated with racial and ethnic contempt. That their descendants, the poor whites and blacks who excavated the Hawk's Nest tunnel, should have been treated likewise is deplorable but not surprising. America was built on the graves of a migrant *Lumpenproletariat*.

The remarkable thing about the Hawk's Nest incident is less the number of fatalities than the lateness of the date. By 1930 most American corporations, although they had by no means protected their employees from all occupational diseases, had at least abandoned practices likely to produce spectacles of mass death. The behavior of Union Carbide and its contractors was, in a word, atavistic, a throw-back to the worst excesses of the Robber Baron era. Union Carbide paid a price for this, not so much in the pitifully small legal settlements, but in adverse publicity in the national press. There was also a House subcommittee hearing, spearheaded by Congressman Vito Marcantonio. (Cherniack, incidentally, treats Marcantonio as a progressive champion; for the record, he was also the hard-nosed political boss of East Harlem, and had ties to the Mafia.) Although Cherniack doubts that publicity and the hearings had much impact, there was in fact far more legal and political to-do made over the Hawk's Nest victims than those of several comparable disasters in the nineteenth century.

Another way to think of the aftermath of the tragedy is that a warning shot was fired across Union Carbide's bow. The warning was unheeded. In December 1984 the release of toxic fumes from Union Carbide's plant in Bhopal, India, killed more than 2,000 persons. This time the law suits will not be settled for pittances. Although the matter has not yet been resolved, it appears that damages may run into the billions. Certain residents of Fayette County, West Virginia, will doubtless regard this as a form of compound interest.

David Courtwright, Ph.D.
Hartford, CT

Professor and Chairman,
Department of History,
University of Hartford.



Photography by Ken Nahoum

AIDS is a complex disease, assaulting the psyche as well as the body. The Spellman Center for the Treatment of Persons With AIDS treats both. A comprehensive medical facility, Spellman is devoted to the care of those suffering from Acquired Immune Deficiency Syndrome.

Respect for individual dignity guides the Spellman program. Staffed by trained personnel dedicated to working with AIDS patients, the Center includes family and friends in the management of the patient's health crisis. Spellman also operates a 24-hour information hotline at 1-800-433-AIDS.

For criteria on admission and referrals, please contact the Medical Director, at **1-212-307-0735**. Spellman is a division of St. Clare's Hospital and Health Center, designated the first AIDS treatment center by New York State.

The Spellman Center
for the Treatment of Persons With AIDS
St. Clare's Hospital and Health Center

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

An AZT Clinical Site

Medical experts,
providers of care

From the Executive Director's Office

CALL

ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1987 Annual Meeting of the House of Delegates will be held at the Ramada Inn Meriden, commencing at 9:30 A.M. on Wednesday, May 6.

Joseph C. Czarsty, M.D., President
Lawrence B. Ahrens, M.D., Speaker of the House
Anne Marie Welch, M.D., Secretary

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society provides:

Resolutions may be introduced by any Active or Life Member or student members or postgraduate physician members of the Society, in compliance with the following provisions:

a. *All resolutions, reports and similar items of business submitted in writing and received at the office of the Executive Director not later than thirty days before the date scheduled for that meeting shall be considered as regular business of the House of Delegates.*

b. *Component county associations or the student members or postgraduate physician members, whose meetings are held later than thirty-five days prior to the date of the House of Delegates shall be allowed five days after the close of such meeting in which to submit resolutions, reports and similar items of business to the Executive Director's office and still have such material considered as regular business. In no event, however, may such resolutions, etc. be considered regular business if they are received later than fifteen days prior to the date of the meeting.*

c. *Reports, recommendations, resolutions or other new business may be presented to the House of Delegates by the Council of The Society at any time and shall be considered as regular business.*

d. *Any business which does not qualify as regular business in accordance with the foregoing provisions may be accepted for consideration by a majority vote of the delegates present and shall be referred at once by the Speaker to a reference committee. When business is introduced under the provision of this paragraph the vote shall be taken without debate, except that the introducer shall be allowed not more than two minutes to explain why it should be considered as regular business.*

COUNCIL MEETING

January 7, 1987

Attendance

Present in addition to the Chairman, Dr. Guy W. Van Syckle and Vice-Chairman, Dr. M.S. Eslami were: Drs. Abbot, Beck, Bonner, Czarsty, Freedman, McDonnell, Orphanos, Petrie, Ragusa, Reyelt, Jr., Robbins, Sadowski, Schwartz, Sullivan, Jr., Sweet, Villa, Waldron, Whalen, Welch, Wetstone and Zlotsky.

Also present: Dr. Massey, Mr. Norbeck, Mrs. Lindquist, Mr. Brunell, Mr. Sullivan, Mr. Staples, Mrs. Connelly, Mr. Tomat (FCMA), Mr. Freberg (NHCMA), Mr. Coffey (HCMA), Mr. Schuman (NLCMA) and Mrs. Ganguli (President Auxiliary).

Absent were: Drs. Ahamed, Ahrens, Bobruff, Dardick, Finn, Jr., Fox, Friedberg, Kamens, O'Brien, Rose and Zanker.

Reports from Physicians Serving on State and Federal Agencies

Dr. Wetstone reported that a task force had been established by the Governor to monitor the prospective payment system. He also noted that it had not received any funding, and thus it was not clear how effective it would be.

Dr. Czarsty reported that the Task Force to Study Tort Reform would be meeting shortly to discuss its final report.

The Council VOTED to invite Dr. James to the next Council meeting to enlarge upon his comments on tort reform developments in Maine, which were included in his report on his attendance at the Maine meeting.

Dr. Eslami reported that Governor O'Neill had appointed him to a task force to study health planning in Connecticut, and that funding of $200,000 had been authorized to keep the HSA's in operation until a task force report is issued. This committee is expected to report to the Legislature in February.

Report of the President

Dr. Czarsty reported that he had been interviewed by Harlan Levy of Channel 30 concerning proposed mandatory Medicare assignment legislation. Representative Edith Prague was also interviewed concerning the issue, and expressed her dissatisfaction with the Medical Courtesy Card program as an alternative to mandatory assignment.

Dr. Czarsty presented a letter from Dr. Jonathan Borak, Chairman of the CSMS Committee on Emergency Medical Services, recommending the appointment of Dr. John Zelem of Ansonia, as a member of the CSMS EMS Committee and the CSMS representative to the State Medical Advisory Committee on EMS (SMAC). The Council VOTED to approve Dr. Zelem's appointment.

A letter was also presented from Dr. Raymond Bopp recommending the discontinuation of the CSMS Surgical Section which has been inactive for several years, and the return of its funds to CSMS. The issue was tabled until further information on the subject is received by the Council.

Report of the Executive Director

Tim Norbeck introduced Margaret Connelly as a new staff person to coordinate the application and approval process for the Medical Courtesy Cards.

He reported on the continuing difficulties faced by physicians in Massachusetts, including a recent referendum urging Congress to enact a national program that would provide high quality comprehensive care, under local control, with a cap on costs.

Mr. Norbeck suggested that CSMS should become more involved in social issues, and requested authorization to enter into discussions with the Department of Human Resources to determine whether there might be a role for CSMS to play in the issue of Connecticut's homeless population. The Council VOTED to approve this request.

CSMS IPA/HMO Update

Dr. Whalen reported that M.D. Health Plan was awaiting approval by the S.E.C., which is expected to occur by late January. Conversations with Insurance Commissioner Peter Gillies will begin officially once S.E.C. approval is obtained.

Barry Scheur explained that the IPA membership fee will now be construed as the purchase of one share of Class B stock in M.D. Health Plan. This alteration results from the conversion of the CSMS IPA into a CSMS-owned stock corporation. It was also noted that billboards were now up around the state advertising M.D. Health Plan.

Report on the AMA Health Policy Agenda

Dr. Petrie prepared a written report which was circulated to the Council and reported that the AMA was preparing new guidelines for the implementation of the HPA study. It was VOTED that the Chairman of the Council appoint an ad hoc committee of three to seven members to review the material prepared by Dr. Petrie and make recommendations as to what could be done with the conclusions reached in the HPA study and report back to the Council and House of Delegates.

Communication from Jerome K. Freedman, M.D.

Correspondence between Dr. Freedman and a Congressional legislator concerning the concept of reimbursement of medical costs for office procedures on a fair and competitive basis to those payments made to institutions was distributed to the Council as background information. Following discussion, it was VOTED to approve the following motion with the understanding that Dr. Freedman would implement this action: "Third party payors should reimburse physician's rental costs for special equipment necessary to perform office-based procedures when the physician chooses to rent rather than own intermittently used equipment."

House of Delegates Action— Semi-Annual Meeting—11/19/86

The Council considered the following resolutions referred by the House of Delegates:

1. Resolution On Publication Of Names Of Physicians

"RESOLVED, That the CSMS is opposed to the publication of lists of physicians' names by HMOs or other healthcare systems in newspapers, magazines or other advertising media in any fashion which intimates or implies that the listed physicians approve of, or support that particular company or it's marketed plans and or concepts, and be it further

RESOLVED, That the CSMS shall notify all such companies of its position in this matter."

Following study and discussion, it was VOTED by the Council to recommend to the House of Delegates that the resolution not be approved. While appreciating the concerns motivating the resolution, the practice nevertheless is well established and will be used by the CSMS sponsored M.D. Health Plan—IPA.

2. Resolution On Inactive Physician Licensure

"RESOLVED, That the House of Delegates petition the Connecticut General Assembly to establish a category of Inactive Licensure."

The Council VOTED to approve the resolution with the words "at no fee" added to the motion, and that this action should be transmitted to the CSMS Committee on Legislation and the Society's lobbyist.

Communication from Councilor from New Haven County

Dr. George Bonner asked the Council to discuss the following items:

1. CSMS becoming involved in the drug problem
2. CSMS support legislation that would better define the Connecticut policy regarding the "sick" leave program, as it pertains to pregnancy.

Following discussion, it was VOTED

1. That CSMS draft a position paper on drug testing and the attitude of its membership concerning their acceptance of drug testing on themselves and to refer this action to the Committee on Physician Health for study and report back to the Council within 90 days.
2. That the CSMS Section on Ob/Gyn suggest changes in the Connecticut policy regarding the "sick" leave program, as it pertains to pregnancy.

Resolution on Special Dues Structure for Military Personnel

It was VOTED not to approve a resolution submitted by New London County Medical Association that physicians serving full-time in the military service be assessed one-half the regular dues rate and to convey the reason for this action to the county association.

N.B.: *The foregoing is a summary of the proceedings and actions of the Council on January 7, 1987. Detailed minutes of the meetings are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.*

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

(If no name is listed, contact the Physician Placement Service for more details.)

EMERGENCY MEDICINE

Director position available in a modern progressive 100-bed general hospital in northwest Connecticut. Board eligible/certified or prepared in emergency medicine with family practice or internal medicine background preferred. Excellent compensation and benefits. Send curriculum vitae and references to Carnes Weeks, M.D., Sharon Hospital, Sharon, CT 06069.

FAMILY PRACTICE

Excellent opportunity to establish practice in one of several rural communities in northwest Connecticut served by modern and progressive 100 bed general hospital. Financial assistance and office space available. Reply in writing with curriculum vitae and references to President, Sharon Hospital, Sharon, CT 06069.

Connecticut Family Practitioner needed for growing practice in beautiful Connecticut location. Excellent salary and life style. Only 1-1/2 hours from NYC. Send CV to Alexander Isgut, M.D., 30 Church Hill Rd., Newtown, CT 06488.

INSTITUTIONAL/INDUSTRIAL

Expanding multi-specialty Clinic in Central Connecticut looking for BC/BE internist. Excellent salary and fringe benefits. Send CV to CSMS, INST/GH.

INTERNAL MEDICINE

A dynamic private practice group of internists and pediatricians is seeking a qualified internist, BE/BC. The practice is associated with a Yale-affiliated hospital and provides housestaff ambulatory internal medicine teaching in office. An excellent career opportunity for those interested in a progressive, innovative private practice. Please submit a CV and inquiries to: Dr. C. Edward Leach, Pediatric & Medical Associates, 330 Orchard Street, New Haven, CT 06511.

INTERNAL MEDICINE/GERIATRICS

B/C or B/E internist sought by solo physician in primary care setting on shoreline Connecticut. Fully computerized, modern office with heavy emphasis on quality care of the elderly. Early buy-in possible with all financing arranged for right candidate. Strong interest in geriatrics preferred. Please send CV to CSMS c/o IM/IA.

OBSTETRICS/GYNECOLOGY

Central Connecticut. Excellent opportunity. Male/Female, B/C B/E—to join well-established solo practice. Office on Hospital grounds. Colposcopy, U/S, Laser available in a progressive University affiliated community hospital served by Yale resident. Send CV to CSMS, OB/SA.

PEDIATRICS

Pediatrician to join practice in greater Hartford area. Salary with incentive leading to equal ownership. Start when available. Send reply to CSMS, c/o PED/JB.

Beginning January 1, 1987, a position will be available for part time hours in private pediatric practice located in a New Haven suburb, five miles from the Yale-New Haven Medical Center. The number of hours could be as few as four, or as many as 20 hours a week. Malpractice insurance will be provided. Earnings will be 40% of the individual's gross income. Also, anytime after January 1, 1987, a position will be available as a full time associate. If interested call 248-4846 any evening after 6:30 P.M.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

FAMILY PRACTICE

March '87. Age 33. Presently in practice. FLEX. AB cert. MD. University of Texas Medical Branch, Galveston, TX; Int. and Res., John Peter Smith Hospital, Ft. Worth, TX. Prefers part time group practice in a small to medium-sized community near New Haven. Write Elizabeth W. Carter, M.D., 1817 Glenbrook Court, Bedford, TX 76021.

July '87. Age 28. Nat'l bds. AB elig. MD, University of Pittsburg; Int. and Res., St. Margaret Memorial Hospital. Prefers group or associate type practice in a medium-sized community. Write, Peter M. Ripley, M.D., 919 River Oaks Dr., Pittsburgh, PA 15215.

GENERAL PRACTICE

Dec. '86. Age 57. Presently in practice. Nat'l bds. AB elig. MD. University of Toronto; Int. Graduate Hospital, Philadelphia, PA; Res., Pottsville Hospital, Pottsville, PA. Prefers group, associate, institutional or industrial type practice in a small to medium-sized community. Office-based practice with in-patient care desirable. Write, William C. MacIntyre, M.D., #718 North Harding Ave., Chicago, IL 60618.

GENERAL SURGERY

Vascular. Aug. '87. Age 32. Nat'l bds. AB elig. MD, University of Medicine and Dentistry of New Jersey; Int., Res. and Fellowship, Northwestern University of Pennsylvania. Prefers group, associate or institutional type practice in a medium to large-sized community. Write, John W. Francfort, M.D., 215 E. Chicago Ave., Apt. 2312, Chicago, IL 61611.

INDUSTRIAL AND INSTITUTIONAL MEDICINE

Immediately available. Presently in practice. Age 63. Nat'l bds. AB elig. MD, NY Upstate Medical Center, Syracuse, NY; Int., USC/Los Angeles City Hospital, Los Angeles, CA; Res., University of San Francisco. Seeking a Directorship either with a company or multi-specialty group. Has been in Occupational Medicine for 19 years. Write, James W. Fitzgerald, M.D., 8800 Vine Valley Dr., Sun Valley, CA 91352.

INTERNAL MEDICINE

Feb. '87. Presently in practice. Age 39. Nat'l bds. AB cert. MD, Tufts Medical School, Boston, MA; Int. and Res., The Hospital of St. Raphael, New Haven. Prefers group or associate type practice. Write, Michael Collins, M.D. 8259 Toll House Rd., Annandale, VA 22003.

July '87. Age 28. Nat'l bds. AB elig. MD, University of Connecticut, Farmington; Int. and Res., St. Vincent's Hospital, NY, NY. Prefers group, associate, institutional or industrial type practice. Write, Anthony G. Ciccaglione, M.D., 101 W. 15th St., Apt. 6MN, New York, NY 10011.

July '87. Age 33. Licensed in Connecticut. Nat'l bds. AB elig. MD, University of Connecticut, Farmington, CT; Int. and Res., Yale affiliated Hospital. Prefers to join a group in southern Connecticut but will consider associate type practice. Write to CSMS, RH/IM.

July '87. Age 29. Licensed in Connecticut. FLEX. AB elig. MD, Autonomous Univ. of Guadalajara, Mexico; Int., SUNY Stony Brook School of Medicine; Res., Norwalk Hospital. Prefers solo or group type practice in a medium to large-sized community. Write Michael James, M.D., Apt. 4H, Bldg. 1, 40 Prospect Ave., Norwalk, CT 06850.

July '87. Age 30. Licensed in Connecticut. FLEX. AB elig. MD, Case Western Reserve University; Int., Cleveland Metropolitan General Hospital; Res., The Hospital of Saint Raphael, New Haven, CT. Prefers group or institutional type practice. Write to Kirana Hills, M.D., 34 Maplewood Terrace, Hamden, CT 06514.

NEUROLOGY

July '87. Age 30. AB elig, MD, Universided Central del Este, Dominican Republic; Int., Millard Fillmore Hospital, Buffalo, NY; Res., (Neur) Dent Institute, Buffalo, NY; Fellowship, University of Arizona Health Science Center. Prefers solo, group or institutional type practice in a medium to large-sized community. Write to Robert Thorsen, M.D., 5905 E. Sun Country Blvd., Tucson, AZ 85712.

OPHTHALMOLOGY

Jan. '87. Age 32. Licensed in Connecticut. Seeks group practice setting. For further information send responses to Andrew E. Gewirtz, M.D., 154 E. 29th St., New York, NY 10016.

PEDIATRICS

Sept. '87. Presently in practice. Age 31. Nat'l bds. AB cert. MD, University of Oregon, Portland, OR; Int. and Res., Mt. Zion Hospital, San Francisco, CA. Prefers a group type practice. Write: CSMS, c/o GT/PED.

PEDIATRICS

PEDIATRIC GASTRENTEROLOGY. July '87. Age 33. FLEX. AB elig. MD, Baghdad Medical College, Istanbul, Turkey; Int. and Res., Milwaukee Children's Hospital (Medical College of Wisconsin) (Pediatrics); Fellowship, Oklahoma Children's Memorial Hospital, Oklahoma City, OK. (Gastroenterology). Prefers solo, group, associate or institutional type practice in a large-sized community. Write, A-Salam N. Al-Hafidh, M.D., 2609 Featherstone Rd. #239, Oklahoma City, OK 73120.

PSYCHIATRY

July '87. Age 29. Nat'l bds. AB elig. MD, University of North Carolina, Chapel Hill, NC; Int., University of Pittsburgh Health Center, Pittsburgh, PA; Res., Western Psychiatric Inst. and Clinic, Pittsburgh, PA. Prefers solo, group and institutional type practice. Write, Arthur Dworetz, M.D., 2355 Tilbury Ave., Pittsburgh, PA 15217.

RADIOLOGY

May '87. Age 60. Licensed in Connecticut. Board certified diagnostic radiologist experienced in hospital and office radiology will be available for part time work. Has excellent background in CT, US, mammography and nuclear medicine. Hours, days, and months flexible. Prefer the Hartford County area. Trained in large U.S. teaching institute. Write CSMS, HS/RAD.

SURGERY

July '87. Age 30. AB elig. MD, SUNY Downstate; Int. and Res., Albert Einstein-Montefiore. Prefers group, associate or insitutional type practice. Write to CSMS, c/o DFR/SRUG.

PLASTIC & RECONSTRUCTIVE. July '87. Age 34. FLEX. AB elig. MD, Victoria University of Manchester, Manchester, England; Res., University of Missouri, Kansas City, MO; Fellowship, University of Colorado Health Sciences Center, Denver, CO. Special interest in Hand Surgery and Microsurgery. Prefers solo, group or associate type practice in a medium-sized community. Write, Laurence A. Kirwan, M.B., 5925 Aberdeen, Shawnee Mission, KN 66205.

UROLOGY

July '87. Age 30. Nat'l bds. AB elig. MD, Vanderbilt University, Nashville, TN; Int., Hartford Hospital, Hartford, CT; Res., Massachusetts General Hospital. Prefers solo, group, associate and institutional type practice in a large-sized community. Write, Wayne L. Poll, M.D., 15 Old Colony Lane #8, Arlington, MA 02174.

PAID CLASSIFIED ADVERTISING

MEDICAL PRACTICE SALES AND APPRAISALS. We specialize in the valuation and selling of medical practices. If interested in buying or selling a medical practice contact our Brokerage Division at The Health Care Group, 400 GSB Building, Bala Cynwyd, PA 19004. (215) 667-8630.

CLASSIFIED ADVERTISING RATES

$50.00 for 25 words or less; 50 cents for each additional word.

$3.00 per insertion for confidential answers sent in care of CONNECTICUT MEDICINE. Payable in advance.

Connecticut Medicine

Vol. 51, No. 3 *The Journal of the Connecticut State Medical Society* March 1987
160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587

CSMS OFFICERS

Joseph C. Czarsty, M.D. Oakville
President
James P. Orphanos, M.D., Greenwich
President-Elect
Norman A. Zlotsky, M.D., Rockville
Vice-President
Annemarie Welch, M.D., New Britain
Secretary
Robert R. McDonnell, M.D., New Haven
Treasurer
Lawrence B. Ahrens, M.D., Newington
Speaker of the House of Delegates
Mehdi S. Eslami, M.D., Waterbury
Vice-Speaker of the House of Delegates

AMA DELEGATES

Edward A. Kamens, M.D., Fairfield
Isadore H. Friedberg, M.D., Newington, *Alternate*
Guy W. Van Syckle, M.D., Danbury,
Chairman of the Council
William A. Whalen, Jr., M.D., Willimantic, *Alternate*
Frank K. Abbot, M.D., Hartford
Jerome K. Freedman, M.D., New Haven, *Alternate*
Stewart J. Petrie, M.D., Derby
Joseph S. Sadowski, M.D., Hartford, *Alternate*

COUNCILORS

Robert P. Ragusa, M.D., Bridgeport
Fairfield County
Roger S. Beck, M.D., Wethersfield
Hartford County
Alfred J. Finn, Jr., M.D., Torrington
Litchfield County
Richard T. Sweet, M.D., Middletown
Middlesex County
Geroge A. Bonner, M.D., New Haven
New Haven County
Jerome Bobruff, M.D., New London
New London County
Gerald L. Schwartz, M.D., Rockville
Tolland County
Sherman L. Waldron, M.D., Thompson
Windham County

ASSOCIATE COUNCILORS

Turpin Rose, M.D., Danbury
Fairfield County
Howard J. Wetstone, M.D., Hartford
Hartford County
John J. O'Brien, M.D., Hartford
Hartford County
W. Peter Reyelt, Jr., M.D., Sharon
Litchfield County
Kenneth Robbins, M.D., Middletown
Middlesex County
Theodore Zanker, M.D., New Haven
New Haven County
Marvin Fox, M.D., Milford
New Haven County
Sultan Ahamed, M.D., Norwich
New London County
Arturo D.P. Villa, M.D., Somers
Tolland County
Kenneth R. Dardick, M.D., Storrs
Windham County

COUNCILOR AT LARGE

Joseph S. Sadowski, M.D., Hartford

Editor	Robert U. Massey, M.D.
Literary Editor	Sherwin B. Nuland, M.D.
Editor Emeritus	J. Alfred Fabro, M.D.
Assistant to the Editor	Vivian C. Feriola
Staff Assistant	Valerie A. Redman

Editorial Board

Hematology and Oncology	James E. Brown, M.D.
Cardiology and Internal Medicine	Martin Duke, M.D.
Psychiatry	Stephen Fleck, M.D.
Dermatology	Robert D. Greenberg, M.D.
Nephrology and Internal Medicine	William A. Handelman, M.D.
Infectious Diseases and Internal Medicine	David P. Johnson, M.D.
General Surgery	Kirk K. Kazarian, M.D.
Pathology and Hemotology	Ramon N. Kranwinkel, M.D.
Pathology	John L. Meyer, M.D.
Public Health	Hans H. Neumann, M.D.
Diagnostic Radiology	M.B. Ozonoff, M.D.
Obstetrics and Gynecology	Stewart J. Petrie, M.D.
Neurosurgery	Melville P. Roberts, M.D.
Cardiology	Michael A. Rossi, M.D.
Internal Medicine and Rheumatology	Robert T. Schoen, M.D.

CSMS Staff

Executive Director	Timothy B. Norbeck
Associate Executive Director	Josephine P. Lindquist
Director of Public Affairs	Raymond T. Sullivan
Director of Government Relations	Shelley A. Marcus, Esq.
Director of Special Programs	Cameron C. Staples
Coordinator Medical Courtesy Card	Margaret K. Connelly
Membership Department	Dorothy M. Stratton
Placement Service	Valerie A. Redman
Management Information Systems	Deborah P. Titus
Accountant	Marc A. Sullivan
Secretary	Patricia A. King
Secretary	Denyse M. Malboeuf

Acute Fatty Liver of Pregnancy

MARIE TUMMILLO, M.D. AND MANOCHER LASHGARI, M.D.

ABSTRACT—Acute fatty liver of pregnancy has classically been considered a rare disorder of pregnancy with a very high morbidity and mortality rate, but recently the condition has shown a more benign spectrum. The incidence of acute fatty liver of pregnancy is reported to be one in every 13,328 deliveries. Disseminated intravascular coagulation has been associated with acute fatty liver of pregnancy and, if this coagulopathy is treated aggressively, the survival rate is further improved.

A recent case is presented to illustrate the fulminant course of this disease and to encourage a better awareness of this entity. Early aggressive treatment improves the outcome.

Acute fatty liver of pregnancy is a potentially fatal and uncommon disorder that may complicate the third trimester of pregnancy. If unrecognized or untreated, the disorder may progress to fulminant hepatic failure with jaundice, encephalopathy, disseminated intravascular coagulation, uncontrollable gastrointestinal and uterine bleeding, and death.[8] Acute fatty liver of pregnancy (AFLP) has been known for forty years.[12] The etiology remains obscure but it occurs typically during the last trimester, presenting with upper abdominal pain, nausea, vomiting, and jaundice. In 85% the course is fatal,[2,11] with death due to hepatocellular failure, complicating severe hemorrhages, extrahepatic organ involvement, or sepsis.[4,11] The incidence has been reported to be one per 13,328 deliveries.[8]

The maternal and fetal mortalities have dropped from as high as 85%[2,11] to 18%[8,14] in the last five years.

Case Reports

The patient is a 27 year old white female, gravida 2, para 0, abort. 1, whose last menustral period was October 20, 1984, and whose expected date of confinement is June 20, 1985. At 39 weeks of gestation, the patient was admitted to the Mount Sinai Hospital Delivery Room in early labor. Her past history was non-contributory. Her prenatal course was uncomplicated except for an upper respiratory infection one week prior to admission. She received prophylactic $\text{RH}_{\circ}$ (D) immune globulin (human) at 28 weeks of gestation.

On admission, her physical examination was within normal limits except for slightly yellow sclera in both eyes. She complained of muscle and joint pain and diarrhea for the past few days. Vaginal examination revealed a vertex presentation at minus three station. The cervix was 1 cm dilated, the uterine contractions were every four minutes, and the fetal heart rate was 140 per minute. Urine analysis on admission was negative for glucose and acetone and showed 1+ bile. The hemoglobin was 15.7gm with a hematocrit of 48.5%.

Four hours after admission, artificial rupture of membranes with thick meconium occurred; an internal fetal electrode was applied at this time. The fetal ECG revealed reduced beat to beat variability. The patient continued to have a moderate amount of vaginal bleeding. Vaginal examination now revealed the cervix 7 cm at minus one station, with continuation of a moderate amount of vaginal bleeding. A diagnoses of fetal distress with possible abruptio placentae was made, and primary low transverse cesarean section was performed without complications. A female infant weighing five pounds thirteen ounces, with an Apgar score of 6/9 was delivered. The immediate postoperative course was uneventful. Routine postoperative and liver tests were requested. The incision was checked approximately eight hours after surgery; a 4 × 7 cm hematoma with bright red blood oozing from the incision was discovered. A diagnoses of disseminated intravascular coagulopathy (DIC) was entertained and confirmed. The patient was transfused with eight units of fresh frozen plasma, ten units of platelets, and two units of packed red blood cells. The patient had a leukocytosis (see table), elevated bilirubin, and abnormal liver function tests.

The postoperative days two through four showed that the DIC was improving, (Table 1) but clinically she became more jaundiced. The diagnosis of AFLP was entertained and a gastroentrology consult was requested. Hepatitis screens were negative. During postoperative days five through nine the patient's abdomen and flanks were completely ecchymotic. Abdominal ultrasound revealed no liver abnormalities, the pancreas and bile ducts were normal. Liver CT scan showed slight enlargement, but no fatty infiltration. On the ninth postoperative day the liver was easily palpated three fingerbreadths below the costochondial margin. On the eleventh postoperative day a percutaneous liver biopsy confirmed the diagnosis of fatty liver. The patient was discharged home markedly jaundiced. She remained alert and stable postoperatively.

Discussion

The patient's clinical course was consistent with AFLP complicated by DIC. However, because the patient presented with nonspecific upper respiratory infection symptoms and had a cesarean section for fetal distress (both relatively common obstetrical problems) and was not clinically jaundiced, we did not consider her at risk for morbidity. It was not until she developed DIC and was obviously jaundiced that we entertained the diagnosis of fatty degeneration of the liver.

MARIE TUMMILLO, M.D., Chief Resident, Department of Obstetrics and Gynecology Mount Sinai Hospital, Hartford. MANOCHER LASHGARI, M.D., Attending, Department of Obstetrics and Gynecology Mount Sinai Hospital; Clinical Assistant Professor of Obstetrics and Gynecology, University of Connecticut School of Medicine, Farmington.

Table 1

PERTINENT LAB DATA

		DAYS												
	Normal Labs	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
Hemoglobin	12-16 MG/DL	15.7	7.6	9.0	12.6	15.1	15.2	15.5				14	13.3	
Hematocrit	38-47% K-UL	48.5	21.3	26.4	36.7	44.7	44.8	44.2				42.2	41.1	
WBC Count	5-10		50.3	28.9		20.6	18.2	17.5			17.5			
Platelets	K/ul 130			111		73	68				96		150	
Bilirubin total	<0.4 MG/DL		8.0			15.0				18.0		14.7	16.7	2.1
SGOT	7-21 u/l				39	57				56		50	55	25
BUN	5-25 MG/DL		23	21		19			16		13			
Prothrombin time	10-13 sec.	16			17.5		15.0		13.0			12.5	12.5	
Partial thrombin time	22-32 sec.	28			31.5		34.5		26.0			24.5	27.5	
Fibrinogen	200-400 ug/dl		50				160							
Thrombin time		100	29	27		32.0	32.5					21		
FDP	10 ug/ml		40	40										
Alkaline phosphatase	12-68 u/l	350	256	153	183	173	166	160	147	138	125		133	
SGPT	6-19 u/l		121	45	45	43	42	39	42	43	43		50	

HBS - negative
HBc - negative
Rhogam - negative
RH anti-body screen - negative

The etiology of AFLP is unknown; it is neither infectious nor inherited. It is necessary to exclude other potential etiologies of fatty liver such as alcoholism or acetominophen ingestion. There are no reported familial cases and subsequent pregnancies in affected patients have been normal. Typically, the patient presents after 35 weeks of gestation with vomiting, headache, fatigue, jaundice, and abdominal pain which may be diffuse, radiating to the back or localized to the epigastrum or right upper quadrant. Bleeding from puncture sites, hematemesis, frank coma, or fulminant liver failure are ominous signs.[14,11] Typically the patient's course is one of deterioration with spontaneous labor resulting in a stillborn and the patient having liver and renal failure. The duration of the process is from three days to several weeks. Primaparas, particularly those carrying twins or male fetuses, are most often effected. The question of preeclampsia may be raised by virtue of hypertension, edema, and proteinuria.

Thrombocytopenia and prolongation of coagulation parameters herald the onset of DIC. This may be caused by inadequate clearance by the damaged liver of clotting factors and fibrin.[9] Leukocytosis and a moderate elevation of hepatocellular parameters (SGPT 300 and bilirubin N to 720mg%) are present. Serum cholestrol and blood glucose levels may be low owing to severe metabolic dysfunction of the liver. Hyperuricemia is present.

If the diagnosis is considered, it is confirmed by liver biopsy. There is a characteristic pattern on frozen section when oil red 0 or other fat stains are used. Hematoxylin and eosin stains reveal a pericentral preponderance of swollen hepatocytes whose nuclei are central islands surrounded by fat infiltration (Figure 1). There is a striking absence of necrosis or inflammatory changes.

Although still unproven, early delivery is thought by many to be responsible for the improved fetal and maternal mortality rate. The case reported is a confirmed case of AFLP where pregnancy was terminated for fetal distress with subsequent discovery of AFLP because of the patients's worsening condition. Retrospectively, she had AFLP at the time of admission to labor and delivery. At present, mother and infant are doing well. We feel this is an instructive case that reinforces the need for timely delivery to improve maternal and fetal survival.

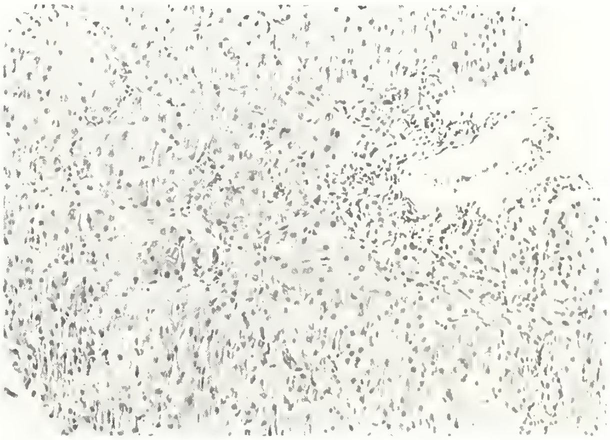
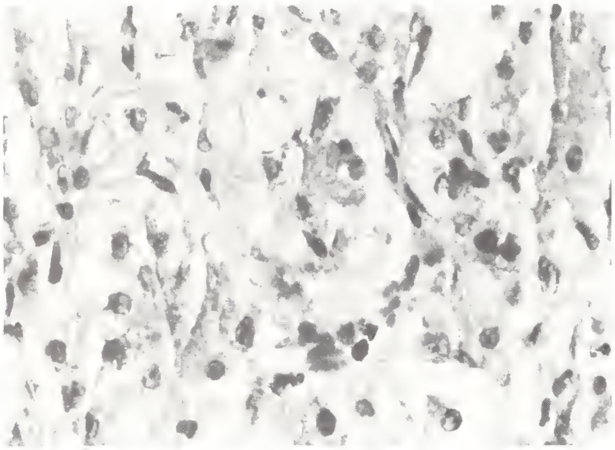
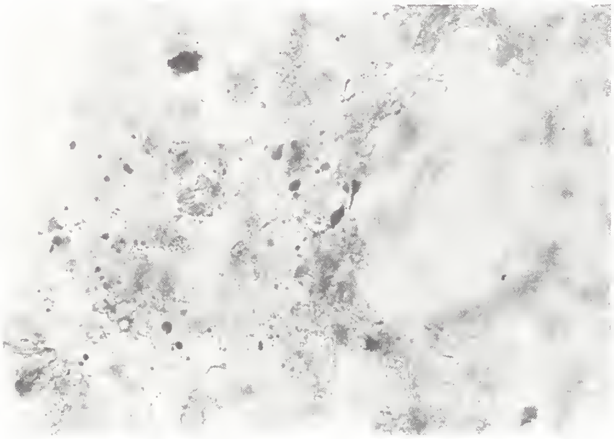


Figure 1

A- Swelling of hepatocytes with micro vacuoles within cytoplasm due to fat accumulation.
Low power H & E (100X)



B - Swelling of hepatocytes, many vacuoles within cytoplasm due to fat gobules.
High power H & E (400X)



C - Fat stain of a frozen section, showing intracytoplasmic fat. (400X)

REFERENCES

1. Burroughs AK, Seong NH, Dojcinov DM, et al: Idiopathic acute fatty acid liver of pregnancy in 12 patients. Q J Med 1982, 51:481-97.
2. Varner M, Rinderknecht NK: Acute fatty metamorphosis of pregnancy; a maternal mortality and literature review. J Repro Med 1980, 24:177-80.
3. Cano RI, Delman MR, Pitchumoni CS, et al: Acute Fatty Liver of pregnancy. JAMA 1975, 231:159.
4. Hatfield AK, Stein JH, Greenberger NF, et al: Idiopathis acute fatty liver of pregnancy. Dig Dis 1972, 17:167.
5. Holzbach RT: Acute fatty liver of pregnancy with disseminated intravascular coagulation. Obstet Gynec 1974, 43:740.
6. Haemmerli UP: Jaundice during pregnancy; with special emphasis on recurrent jaundice during pregnancy and its differential diagnosis. Acta Med Scand (suppl) 1966, 444:1-111.
7. Idem. Acute fatty liver of pregnancy. Dig Dis Sci 1984, 29:456-7.
8. Kaplan MR: Acute fatty liver of pregnancy. N Engl J Med 1985, 313:367-370.
9. Rake MO, Flute PT, Shilkin KB, et al: Early and intensive therapy of intravascular coagulation in acute liver failure, Lancet 1971, ii:1215.
10. Riely CA: Acute hepatic failure at term; diagnostic problems posed by broad clinical spectrum. Postgrad Med 1980, 68(3):118-27.
11. Scully RE, Galdabini JJ, McNeely BU: Case records of the Massachusetts General Hospital. N Engl J Med 1981, 304:216.
12. Sheehan HL: The pathology of acute yellow atrophy and delayed chloroform poisoning. J Obstet Gynec (Brit. Commonwealth) 1940, 22:49.
13. Stander HJ, Cadden JF: Acute yellow atrophy of the liver in pregnancy. Am J Obstet Gynecol 1934, 28:61-9.
14. Pockros PJ, Peters RL, Reynolds TB: Idiopathic fatty liver of pregnancy: findings in ten cases. Medicine (Baltimore) 1984, 63:1-11.

Primary Lymphoma of the Liver

JONATHAN S. RUBIN, B.S., ARTHUR P. VERCILLO, M.D.
AND JOHN A. D'ALOTTO, M.D.

ABSTRACT—We present the thirty-first reported case of primary lymphoma of the liver. An atypical histology of small cleaved cell lymphoma was found after open liver biopsy. Other unusual findings included an elevated carcinoembryonic antigen, normal liver function tests, and hepatic and rectal granulomas. The patient was placed on cyclophosphamide, hydroxyurea, vincristine, and prednisone, and was doing well six months later.

Introduction

A patient complaining of an abdominal mass was found to have primary lymphoma of the liver associated with hepatic and rectal granulomas. A total of 30 cases of primary hepatic lymphoma have been reported to date.[1-6] The histology in this case showed a small cleaved cell lymphoma, an unusual cell type for primary hepatic lymphoma.

Case Report

A 65-year-old white female presented to Saint Francis Hospital and Medical Center in Hartford with a chief complaint of an abdominal mass of three weeks duration. The right upper quandrant mass was painless and non-tender. The patient had lost 20 pounds over the past three years, and noted decreased appetite. She was otherwise asymptomatic. She had had a cholycystectomy 11 years ago. She was taking a hydralazine-hydrochlorthiazide combination for hypertension. She had a 50 pack-year smoking history and consumed two or three mixed drinks per day. There was no history of jaundice, hepatitis, birth control pill ingestion, or intravenous drug use.

The physical examination revealed an obese white female in no distress. She was afebrile with a pulse of 80/minute and blood pressure of 156/80. She had palmar erythema and no evidence of jaundice or spider angiomata. A 10 cm non-tender mass was palpable in the right upper quadrant of the abdomen, extending 4 cm below the costal margin, contiguous with the liver. No lymphadenopathy, splenomegaly, caput medusae, abdominal bruit, ascites, or other mass was appreciated. Rectal examination showed a non-tender, firm, round, 0.5 cm diameter mass, which was located on the right anterior rectal wall, 5 cm from the anus. A stool specimen was negative for occult blood.

Laboratory examination was reported as follows: alkaline phosphatase 105 mIU/ml, serum glutamate-oxalate transaminase 20 mIU/ml, serum glutamate-pyruvate transaminase 23mIU/ml, lactate dehydrogenase 146mIU/ml, total bilirubin 0.5mg/100 ml, direct bilirubin 0.2mg/100 ml prothrombin time 12.5 seconds, total protein 5.5gm/dl, albumin 2.6gm/dl, alpha-1 0.5gm/dl, alpha-2 0.7gm/dl, beta 0.8gm/dl, gama 0.9gm/dl, alpha-fetoprotein (AFP) 5.4ng/ml, carcinoembryonic antigen (CEA) 9.8ng/ml, hematocrit 44.1% and white blood cell count 7,200 with a normal differential. Electrolytes, calcium, amylase, uric acid, and erythrocyte sedimentation rate were normal.

Chest x-ray, mammogram, barium enema, abdominal x-ray, and upper GI series were unremarkable. Rigid sigmoidoscopy revealed a 0.5cm mass in the rectum, 5cm from the anal verge.

Biopsy of the mass demonstrated lymphocytes, plasma cells, and mononuclear inflammatory cells extending to the lamina propria and submucosa, along with non-caseating granulomas, epithelioid histiocytes, and numerous giant cells.

An abdominal ultrasound showed an 8cm solid mass in the right liver lobe. A liver-spleen scan displayed multiple filling defects in all lobes of the liver; the spleen was normal. Computerized axial tomography scan of the abdomen showed a solitary large solid lesion in the right lobe of the liver with no abnormality of the spleen, pancreas, kidney, pelvis, or lymph nodes. A technetium red blood cell study showed no vascular abnormality of the liver. Chest CAT scan revealed a small pleural effusion, with no evidence of lymph nodes or masses. A bone marrow biopsy was normal.

A percutaneous liver biopsy demonstrated hepatic tissue with clusters of lymphocytes and some poorly formed granulomas; no tumor was apparent.

At laparotomy a large, firm, white, encapsulated mass was seen in the right lobe of the liver. The mass spread along the posterior edge of the liver to the region of the porta hepatis. Additional small nodules were palpated in the left lobe of the liver extending to the falciform ligament. The mass infiltrated most of the right lobe and approximately 25% of the left lobe. A small portion of omentum adjacent to the liver was infiltrated with tumor. Multiple biopsies later revealed small cleaved cell lymphoma and granulomas of the liver and omentum. There was no sign of a mass in the spleen, small bowel or large bowel and there was no lymphoadenopathy noted during laparotomy.

Discussion

Lymphoma in the liver, with a lack of lymph node or other extranodal involvement, establishes the diagnosis of primary lymphoma of the liver. In this case, the diagnosis was confirmed by laparotomy, bone marrow examination, and chest and abdominal CAT scans, which demonstrated that the lymphoma was limited to the liver and the adjacent omentum. Primary lymphoma of the liver is a rare diagnosis, with only 30 known cases.[1-6] Strayer et. al.[6] stated that the liver is an unusual site for a primary lymphoma. The ratio of cases of primary lymphoma

---

JONATHAN S. RUBIN, B.S., Medical Student, University of Connecticut School of Medicine, Farmington, CT. ARTHUR P. VERCILLO, M.D., Chief Resident in Surgery, Saint Francis Hospital and Medical Center, Hartford; Clinical Instructor, Department of Surgery, University of Connecticut School of Medicine. JOHN A. D'ALOTTO, M.D., Associate Attending Physician, Department of Surgery, Saint Francis Hospital and Medical Center; Assistant Clinical Professor, Department of Surgery, University of Connecticut School of Medicine.

Reprint requests to: Apartment 5S, 9 Sherman Court, New Britain, CT 06052 (Mr. Rubin).

of the liver to secondary hepatic lymphoma has not been reported, although it is probably exceedingly small. It is possible that a case of "primary hepatic lymphoma" may represent a secondary hepatic lymphoma which was incorrectly diagnosed, but a thorough laparotomy or autopsy should be able to distinguish primary versus secondary lymphoma. No published accounts have acknowledged a misclassification between primary and secondary lymphoma.

According to the Ann Arbor classification of lymphoma,[7] lymphoma found in the liver is a manifestation of systemic disease and is thus classified as stage IV. Daniel et. al.[2] regard primary hepatic lymphoma as stage I_e. Since there is no evidence of systemic disease, and since the lymphoma is limited to a single extralymphatic site, stage I_e appears to be a more appropriate classification. A small cleaved cell lymphoma represents a proliferation of B-lymphocytes at an intermediate developmental stage.[8] Lukes and Collins[8] found that 79% of the cells at this stage displayed a monoclonal IgG surface marker. Small cleaved cell lymphoma is classified as a low grade lymphoma if it is nodular, or an intermediate grade lymphoma if it is diffuse.[9] Wihout nodal involvement, as in this case, one can not distinguish between the two grades.

Small cleaved cell lymphoma is an unusual histological diagnosis for a primary hepatic lymphoma. If one considers the Rappaport classification of poorly differentiated lymphocytic lymphoma (PDLL) to be an equivalent diagnosis, it has been reported in four of the 30 cases of primary hepatic lymphoma.[1,4,5] Diffuse histiocytic lymphoma is the most common diagnosis, occurring in 20 of the 30 cases.[1,2,6] Osborne et. al.[1] in a series of 10 patients with primary lymphoma of the liver, found that all 10 patients had an elevated alkaline phosphatase and lactate dehydrogenase, and normal or undetectable AFP and CEA. They noted that, in a patient presenting with a liver mass, abnormal liver function tests, and normal AFP and CEA levels, the diagnosis of hepatic lymphoma should be considered over metastatic carinoma or hepatocellular carcinoma. In this case, the patient's elevated CEA level and normal liver function tests represent a variant presentation of primary hepatic lymphoma. The CEA level of 9.8ng/ml is difficult to interpret, given the long history of cigarette smoking.[10]

Granulomatous inflammation on rectal and liver biopsy was another anomolous finding. Its relationship to the lymphoma is obscure. Lewin et. al.[11] noted granulomatous inflammation in a portion of ileum which was close to a diffuse histiocytic lymphoma of the ileum. They recognized the association between lymphoma and Crohn's disease, but did not believe that the granuloma was related to Crohn's disease. Rather, it was suggested that the granuloma may have been related to the lymphoma. Boros[12] has hypothesized that lymphocytes secrete lymphokines, which stimulate macrophages to form granulomas.

The patient was placed on CHOP (cyclophosphamide, hydroxyurea, vincristine and prednisone) and was asymptomatic at six month follow-up. The tumor is no longer palpable.

Conclusion

A case is reported of a patient who presented with a hepatic mass, normal liver function tests, elevated CEA and normal AFP. Open liver biopsy revealed a primary lymphoma of the liver, a rare disease. The lymphoma was composed of small cleaved cells. Granulomatous inflammation was found in the rectum and the liver, which may be related to the lymphoma. The patient was placed on CHOP and was doing well six months later.

REFERENCES

1. Osborne BM, Butler JJ, Guarda LA. Primary lymphoma of the liver. Cancer 1985, 56:2902-10.
2. Daniel SJ, Attiyeh FF, Dire JJ, et al. Primary lymphoma of the liver treated with extended left hepatic lobectomy. Cancer 1985, 55:206-9.
3. Feeman C, Berg JW, Cutler SJ. Occurrence and prognosis of extranodal lymphomas. Cancer 1972, 29:252-260.
4. Talamo TS, Dekker A, Gureck J, et al. Primary hepatic malignant lymphoma. Cancer 1980, 46:336-339.
5. Miller ST, Wollner M, Meyers PA, et al. Primary hepatic or hepatosplenic non-Hodgkin's lymphoma in children. Cancer 1983, 52:2285-2288.
6. Strayer DS, Reppun TS, Levin M, et al. Primary lymphoma of the liver. Gastroenterology 1980, 78:1571-1576.
7. Carbone PP, Kaplan HS, Musshoff K, et al. Report of the Committee on Hodgkin's Staging Classification. Ca Res 1971, 31:1860-1861.
8. Lukes RJ, Collins RD. Lukes-Collins classification and its significance. Ca Treat Rep 1977, 61:971-979.
9. Berard CW, Greene MH, Jaffe ES, et al. A multi-disciplinary approach to non-Hodgkin's lymphoma. Ann Int Med 1981, 94:218-235.
10. Go VLM. Carcinoembryonic antigen. Cancer 1976, 37:562-566.
11. Lewin KJ, Ranchod M and Dorgman RF. Lymphomas of the gastrointestinal tract. Cancer 1978, 42:693-707.
12. Boros DL. Granulomatous inflammation. Prog Allergy 1978, 24:183-267.

Arthroscopic Re-Evaluation of the Knee

RONALD TIETJEN, M.D.

ABSTRACT – In a retrospective evaluation of 3,164 knee arthroscopies performed from 1976-1983 there were 48 knee re-arthroscopic procedures performed. It was this sub-group of 48 knee arthroscopic procedures that was investigated in a retrospective fashion in regard to the indications for the primary arthroscopic procedure, the indications for the second arthroscopic procedure, as well as the procedures performed and the pathological findings identified. It was realized in this study that the indications for the second arthroscopic procedure were most commonly diagnoses that were not appreciated on the primary procedure and also those diagnoses that were not amenable to arthroscopic surgery. It is hoped that this study will help better define the indications for arthroscopic re-evaluation of the knee.

Background

Arthroscopic evaluation of the knee has become the most common technique used to evaluate significant knee complaints. It is well documented that the arthroscopic procedure of the knee has a high degree of accuracy in establishing the pathological condition as well as allowing the arthroscopist to perform intra-articular surgical procedures. The results of arthroscopic surgery in joints, especially the knee joint, have continued to improve, and the number of arthroscopic procedures done for pathological problems has continued to rise. However, it is well recognized that many patients undergoing arthroscopic surgery may not become completely asymptomatic after arthroscopic surgery, and that some of these will undergo a second orthopedic procedure, either an arthroscopic re-evaluation or an open procedure on the knee joint. It is felt that failure to achieve a "cure" can be related either to inability to diagnose and therefore treat that pathological condition within the knee joint at the time of initial arthroscopic evaluation, or to a condition which is not amenable to treatment with arthroscopic surgery. The experience of the arthroscopist affects both of these potential treatment problems. However, in this report most of the 3,164 knee arthroscopies which were evaluated were performed by the author using a standardized technique in which his learning curve had been achieved prior to initiation of this study.

Operative Procedure

A thorough history and physical examination was carried out in the office. Routine x-rays were obtained on all patients. After careful correlation of the history, physical, and radiographical findings, the possibility of an arthrogram was considered in some patients. Fully informed consent was obtained from the patient which always included a discussion of the expectations of the surgical procedure and postoperative protocol. Preoperatively the patient was instructed to restrict activities one week prior to surgery, and most patients were started on non-steroidal anti-inflammatory medications to reduce synovitis. Patients were either operated on as inpatients or as one-day surgical patients.

The patients were given the choice of local anesthesia, a general anesthesia, or spinal anesthesia, with most patients electing a general anesthesia. After anesthetic induction, the knee was carefully evaluated for ligament stability in all planes and the knee was meticulously prepped and draped in the standard fashion utilizing water proof draping. The arthroscope was routinely introduced through the lateral parapatellar portal just lateral to the patellar tendon and just proximal to the anterior horn of the lateral meniscus. The second portal was used over the medial joint line to allow introduction of the probe to palpate intra-articular structures.

The knee was extended and irrigated with either normal saline solution or lactated Ringer's solution. The knee was then arthroscoped beginning at the anterior medial compartment, then inspecting the midportion of the medial compartment, and finally inspecting the posterior compartment. The arthroscope was then passed over the medial femoral condyle inspecting the medial capsular area as well as the femoral condyle. The suprapatellar pouch was evaluated and examined carefully for any loose bodies. The undersurface of the patella as well as the femoral groove was carefully inspected for any chondromalacia or evidence of malalignment of the patellar mechanism. The knee was flexed and then extended to watch the tracking of the patella. The arthroscope was

---

RONALD TIETJEN, M.D., Attending, Department of Orthopedic Surgery, Danbury Hospital, Danbury, Ct.; Private practice, Danbury Orthopedic Associates, P.C., Danbury.

then passed into the lateral compartment and the lateral gutter was inspected for any loose bodies. The popliteus hiatus and the popliteus tendon were evaluated. The arthroscope was then passed along the anterior portion of the lateral compartment and the leg was placed in a special position (the "Figure-of-4" position) in order to allow more free inspection of the lateral meniscus and the lateral compartment. The lateral compartment was carefully inspected including the articular cartilage, the lateral meniscus, and the popliteus hiatus and tendon. Those structures were probed carefully. Attention was then turned to the intercondylar area where the knee was slowly brought into full extension and the anterior cruciate inspected. This was also palpated with the probe as was the posterior cruciate ligament. The arthroscope was then passed through the intercondylar notch in the posterior compartment. The 30° arthroscope was then removed and the 70° arthroscope introduced into the posterior compartment of the knee. The posterior cruciate ligament was well visualized by this technique as well as the posterior horn of the medial meniscus and if necessary the posterior horn of the lateral meniscus. These structures were also probed with accessory portals as necessary. The leg was placed in a leg holder or a lateral thigh buttress and valgus stress applied to the knee. With the knee in extension the posterior horn of the medial meniscus was carefully probed and inspected. The condition of the articular surface was observed.

A drainage needle was not routinely necessary in most arthroscopic procedures but was used when the need arose. The tertiary portals, most commonly the transpatellar, or the posterior medial portals were used when necessary. It is the practice of the author to utilize as many portals as are necessary for either diagnostic or arthroscopic surgical approaches. The tourniquet was used throughout the entire procedure and was inflated prior to the introduction of the arthroscope.

After careful diagnostic arthroscopy had been carried out, pathological problems were dealt with arthroscopically. With suitable training and expertise most arthroscopic surgeons can perform the appropriate procedure with a very low incidence of open arthrotomy. At the conclusion of the procedure the instruments were removed, fluid was drained from the knee, and sutures were placed in the arthroscopy portals. Postoperatively the dressing was applied to the leg. The dressing began at the toes, extended to the high thigh area to help reduce any possibility of edema.

Postoperative instructions varied depending upon the pathology found at the time of surgery but generally involved the use of crutch walking until weight bearing could be painlessly tolerated and then progressive activities were advised. Dressing changes were accomplished in two to three days with the application of band aides to the arthroscopy sites. Sutures were removed two weeks after surgery and the patient was begun on a self-rehabilitation program stressing quadriceps and hamstring rehabilitation. This technique has remained fairly constant in the author's hands for the past seven years and was utilized in most of the arthroscopic procedures.

Patient Evaluation

In each of 48 patients who had a second arthroscopic procedure the preoperative diagnosis for the initial evaluation was re-assessed. Those diagnosis can be seen in Table 1. Internal derangement of the knee is a nonspecific diagnosis which is applied by many arthroscopic surgeons when the diagnosis is unclear. Although the use of the term "internal derangement of the knee" has been criticized by some, it is felt to be useful when several pathological conditions are suspected or when the diagnosis is unclear. Of the 3,164 patients who had undergone arthroscopic procedures approximately 10% of the preoperative diagnosis were internal derangement of the knee. The other diagnosis of ligament injury, torn medial meniscus, acute hemarthrosis, arthritis, torn lateral meniscus, and loose bodies are listed in Table 1. Other diagnoses included nonspecific problems such as synovitis, rule out loose body, and knee pain of undetermined etiology.

Table 1

PRE-OPERATIVE DIAGNOSIS FOR INITIAL ARTHROSCOPIC EVALUATION

Internal Derangement of the Knee	33
Ligament Injury	11
Tear of the Medial Meniscus	8
Acute Hemarthrosis	15
Arthritis	6
Tear of the Lateral Meniscus	3
Other	6
Loose Body	4

Table 2 shows the postoperative diagnosis for the initial arthroscopic evaluation. It is seen here that any one knee can have multiple diagnoses for the pathological findings. It is also noted that internal derangement of the knee was not listed as a postoperative diagnosis in any of these knees, but rather what was felt to be the pathological anatomical condition was noted as the postoperative diagnosis.

Table 2

POST-OPERATIVE DIAGNOSIS FOR INITIAL ARTHROSCOPIC EVALUATION

Internal Derangement of the Knee	0
Tear of the Lateral Meniscus	2
Tear of the Medial Meniscus	11
Loose Body	6
Tear of the Posterior Cruciate Ligament	1
Tear of the Anterior Cruciate Ligament	12
Synovitis	15
Arthritis	17
Hemarthrosis	6
Peripheral Separation of the Meniscus	20
Hypertrophied Medial Plica	15

Table 3 lists the procedure performed at the time of the initial arthroscopic evaluation. It is noted that 19 of these patients had a diagnostic arthroscopy only, with no surgical arthroscopy performed. Forty-eight of the 3,164 patients evaluated with arthroscopic surgery continued to have knee complaints of significant quality and undetermined etiology to justify a second arthroscopic evaluation in order to treat these patients or to confirm the initial diagnosis. This represented 1.5% of the total number of arthroscopies performed. Before a second arthroscopic procedure was suggested the patient was usually treated with physical therapy or medication to try to avoid a second procedure. Occasionally an anthrogram was obtained if one had not been obtained prior to the preliminary arthroscopic procedure.

Table 3

INITIAL ARTHROSCOPIC EVALUATION PROCEDURE

Diagnostic Only	19
Synovial Biopsy	15
Incision (Excision) of the Plica	14
Medial Meniscectomy	11
Lateral Meniscectom	2
Removal of a Loose Body	6
Repair Medial Meniscus	2

Table 4 reveals that the preoperative diagnosis for the second arthroscopic evaluation was most commonly internal derangement of the knee with the diagnosis of tear of the medial meniscus, tear of the lateral meniscus, or loose body also made, usually confirmed by the use of arthrography. Thus, it is felt that most patients undergoing a second arthroscopic procedure had not obtained a definitive anatomical diagnosis for their problem after the first procedure and thus the term "internal derangement of the knee" was justifiable.

Table 4

PRE-OPERATIVE DIAGNOSIS FOR SECOND ARTHROSCOPIC EVALUATION

Internal Derangement of the Knee	38
Tear of the Medial Meniscus	4
Tear of the Lateral Meniscus	2
Loose Body	2

Table 5 shows the postoperative diagnosis for the second arthroscopic evaluation. A significant number of these patients were noted to have arthritis of either the medial compartment, lateral compartment, or patellofemoral compartment of the knee. A tear of the anterior cruciate ligament was often documented and felt to be the cause of the patient's continuing symptoms on the second procedure. A tear of the medial meniscus was often found. However, some of these tears were a degenerative type of tear associated with articular surface disease. A large hypertrophied medial plica was also found in some of these patients.

Table 5

POST-OPERATIVE DIAGNOSIS FOR SECOND ARTHROSCOPIC EVALUATION

Arthritis	11
Tear of the Medial Meniscus	8
Tear of the Lateral Meniscus	4
Loose Body	2
Tear of the Anterior Cruciate Ligament	14
Hypertrophied Medial Plica	9

Table 6 reveals the procedures carried out at the second arthroscopic evaluation. Fourteen patients had diagnostic arthroscopy only, with the other patients treated as noted.

Table 6

SECOND ARTHROSCOPIC EVALUATION PROCEDURE

Diagnostic Arthroscopy Only	14
Medial Meniscectomy	8
Lateral Meniscectom	4
Removal of the Loose Body	2
Excision of the Plica	9
Debridement/Synovectomy	11

The higher number of patients having a diagnostic arthroscopy only was somewhat bothersome, but it was felt that these patients would not be helped by their second arthroscopic procedure. It was felt that the patients who underwent a medial meniscectomy, a lateral meniscectomy, or removal of a loose body would be definitely helped by the second procedure, but that those patients with an excision of plica or debridement/synovectomy of the knee might be helped only somewhat. The indications for arthroscopic re-evaluation of the knee were then considered. It was recognized in carrying out this retrospective study that the indications for arthroscopic re-evaluation were either the fear of a missed diagnosis or that an inadequate procedure had been carried out initially. Inadequate procedure or missed diagnosis were felt to be represented in those patients shown in Table 7. A tear of the medial meniscus, a tear of the lateral meniscus, and a removal of the loose body within the knee were felt to be related to a missed diagnosis or an inadequate procedure performed on the first arthroscopic evaluation. Also in Table 7 were those patients who had a hypertrophied medial plica which was not felt to be symptomatic on initial evaluation but upon second evaluation was indeed treated with incision as necessary. Most of those patients did improve after this procedure was carried out, and therefore it was felt that the patient was indeed helped by the second procedure. However, it is recognized that there is considerable controversy regarding the effect of a plica on knee functions, especially whether a plica can cause significant mechanical complaints.

Table 7

MISSED DIAGNOSIS OR INADEQUATE PROCEDURE

Tear of the Medial Meniscus	8
Tear of the Lateral Meniscus	4
Loose Body	2
Hypertrophied Medial Plica	9

Table 8 represents the category of patients who had the correct diagnosis established at the time of initial arthroscopic surgery but who would not have been expected to respond to arthroscopic surgery. Eleven patients had significant arthritis which was felt to be causing the symptoms. Fourteen patients were noted to have anterior cruciate ligament deficiency which was causing the symptoms. It was also recognized that some arthroscopic surgeons have developed procedures in which arthritis and anterior cruciate ligament deficiency can be treated with arthroscopy but it is not felt that this represents the standard of orthopedic care for these procedures at this time.

Table 8

CORRECT DIAGNOSIS TREATMENT NOT AMENABLE TO ARTHROSCOPIC SURGERY

Arthritis	11
Anterior Cruciate Ligament	14

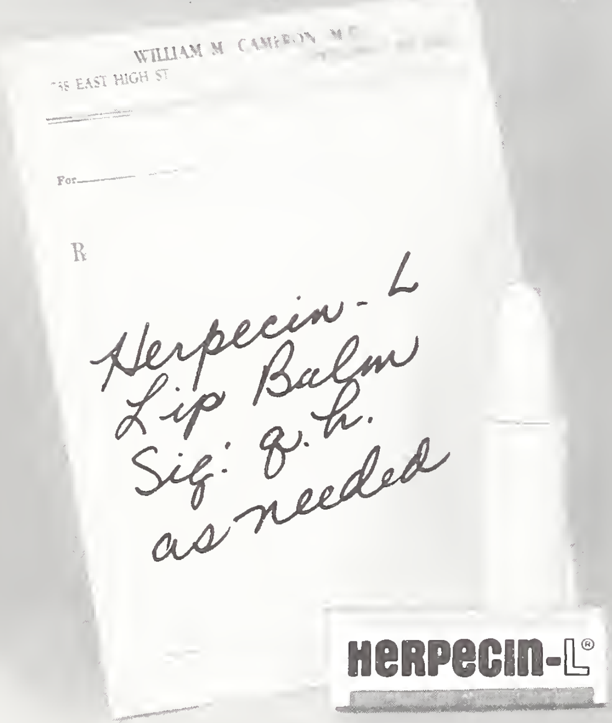
Discussion

It has been noted that some patients do not improve after arthroscopic surgery. It has been the purpose of this paper to determine why a group of patients did not adequately respond after arthroscopic evaluation. Many arthroscopists have realized that a group of patients who have minimal physical findings and have a poor history for mechanical knee problems do not respond well after arthroscopic treatment. It was felt that these patients were excluded from this study and indeed those patients with vague and inconsistent knee complaints should be thoroughly evaluated and treated for a prolonged period before an arthroscopic evaluation is recommended because of their poor prognosis.

It is also recognized that there are two other groups of patients which do not respond well to arthroscopic surgery. The first of these groups are conditions which are not amenable to arthroscopic surgery, namely those patients with anterior cruciate deficient knees, and those with advanced degenerative arthritis. After careful arthroscopic evaluation it may be that these patients are best treated with anti-inflammatory medications, physical therapy, open knee procedures specific for those conditions, or bracing.

The second group of patients are those who have continued mechanical complaints without significant arthritis and/or anterior cruciate deficiencies; these patients are excellent candidates for arthroscopic re-evaluation of the knee and will have a high degree of satisfaction after appropriate arthroscopic treatment. Overall, it has been established that all conditions are not amenable to arthroscopic surgery and paradoxically those with the greatest complaints (i.e., those with degenerative arthritis) and those with the conditions causing minor complaints may often not benefit from arthroscopic surgery.

Dx: recurrent herpes labialis


WILLIAM M. CAMERON, M.D.
EAST HIGH ST
For
℞
Herpecin-L
Lip Balm
Sig: q.h.
as needed

"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough.**" DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits.**" MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) . . . **response** was **dramatic. HERPECIN-L** . . proven **far superior.**" DDS, PA

"All patients claimed **shorter duration** . . . at **prodromal symptoms** . . . HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

Eye Findings in Lyme Disease

A. WILLIAM BERTUCH, M.D., ELIZABETH ROCCO, M.D. AND
ELWIN G. SCHWARTZ, M.D.

Connecticut physicians are now well aware of Lyme disease. The purpose of this paper is to report a previously unreported incidence of eye manifestations.

The only consistently reported eye finding has been transient conjunctivitis. The one exception was a case reported by Steere of an iritis which proceeded to panophthalmitis and the loss of the eye.[1]

It is well to reiterate that the currently recommended treatment consists of phenoxymethyl penicillin, 500mg four times a day; tetracycline, 250mg four times a day; erythromycin, 250mg four times a day, for a minimum of 10 days, or up to 20 days if the symptoms persist or recur. Resistant or recurrent infection is best treated with high dosage intravenous penicillin.

Case Reports

P.N.: This 37-year-old architect was bitten in August 1983 by an insect, believed to be a tick. Within one week he developed a flu like picture with fever, myalgia, arthralgia, and headache. He had no typical ECM rash. His only rash was between the second and third fingers of the right hand, relieved with betamethasone valerate cream and not felt to be associated with his systemic disease. Remission was produced with systemic erythromycin and Motrin.

In late September the previous symptoms returned with right upper quadrant pain which was "achy," radiated into the back, and was worse with deep inspiration and sitting up. There was nausea but little vomiting. By early October 1983 he noted mild weakness of the right arm. It progressed rapidly to weakness of both arms, and numbness of the face which was worse on the right side. This precipitated a hospital admission.

His physical examination was normal except for bilateral Bell's Palsy, some sensory loss in the right side of the face, and a right 6th cranial nerve palsy. There was slight slurring of speech. Extensive laboratory tests were normal, including liver and CSF studies. His CPK and transaminases were elevated. Since he was allergic to penicillin, he was started on tetracycline 2 gm a day for three weeks.

He was first seen in our office in February 1984, at which time his best corrected vision in the right eye was a poor 20/25, and 20/20+ in the left. There was minimal facial asymmetry on the left side, including mild weakness of the eyelids on the right. Although the optic discs appeared nearly equal, a mild temporal pallor on the right side was present.

When next seen in April 1985, the uncorrected vision was 20/20 bilaterally. The facial weakness was less, but the temporal pallor of the disc was more pronounced on the right with a 0.4 cup, compared to a more red 0.2 cup on the left. When last seen in March 1986, he still complained of numbness and spasms of the right cheek. This occurred particularly when he moved his tongue behind the right molars. The sensation was not unlike a "charlie horse."

M.J.: (Figures 1 and 2) This 15-year-old white male presented in May 1986 for routine examination and possible fitting for contact lens. He was experiencing neither ocular difficulties nor decreased visual acuity. His past ocular history revealed compound myopic astigmatism one year prior which easily corrected to 20/15 vision bilaterally. There were no slit lamp abnormalities noted in either eye on that examination. The medical history was significant for a bout of Lyme disease with encephalitis five years previously. Treatment had been systemic tetracycline and prednisone.

His visual acuity measured 20/15 in the right eye and 20/20−3 in the left with glasses. The eye was externally calm. Slit lamp biomicroscopy of the left cornea revealed numerous randomly scattered patchy snow ball like intrastromal infiltrates. They were approximately 0.25 mm with indiscreet borders. The depth was random with lesions from Bowman's membrane to Descemet's membrane. The greatest concentration of lesions was central, but lesions were seen to the limbus. The anterior chamber was clear and applanation pressure was 17. The vitreous cavity was clear and the posterior pole was normal. Examination of the right eye failed to reveal any abnormality. On May 8th 1986 his ELISA titre was 1:3200.

The patient was given a two week trial of doxycycline 100 mg twice a day without clinical effect. This medication was then stopped and the patient was then placed on tetracycline ophthalmic ointment four times a day for 14 days. This also had no effect on the corneal lesions of the left eye. The tetracycline ointment was decreased to twice a day, and prednisolone acetate 1% ophthalmic solution was added four times a day. Rapid resolution occurred, with total clearing of the corneal changes within the next six weeks.

R.M.: (Figure 3) This 7-year-old white female was referred in November, 1985 for decreased visual acuity on school screening. Examination at the time revealed 20/70+ vision bilaterally. The ocular exam was normal except for scattered corneal opacities lying at all stromal levels. No epithelial disturbance or stromal edema was noted.

Her recent medical history was unremarkable, but six months previously she had been admitted to the local hospital for a massive right knee effusion. The fluid had a WBC of 30,000, 87% polymorphonuclear cells, and no growth on culture. The work-up for juvenile rheumatoid arthritis was negative. It was recalled that six weeks prior to admission a tick had been removed from the child's scalp.

Treatment was instituted for Lyme disease consisting of 1.5 million units of penicillin every four hours for ten days. Her serum ELISA antibody titer for *Borrelia burgdorferi* was positive for a dilution of 1:20,480.

She has subsequently been followed ophthalmologically for seven months. No further treatment was instituted. After 30 days, vision improved to 20/30+ in the right eye, and 20/20 in the left. The stromal infiltrates were 50% improved in the right, and 90% improved in the left. Slit lamp photos were obtained. On her last visit, vision was 20/20− bilaterally, the infiltrates more diffuse and anterior on the right, and had moved to the corneal periphery on the left.

A. WILLIAM BERTUCH, M.D., Senior Attending Ophthalmologist; ELIZABETH ROCCO, M.D., Assistant Attending Ophthalmologist; EDWIN G. SCHWARTZ, M.D., Assistant Attending Ophthalmologist; all of the Middlesex Memorial Hospital, Middletown, CT.

Reprint requests to: Middlesex Eye Physician, P.C., 195 South Main St., Middletown, CT 06457 (Dr. Bertuch).

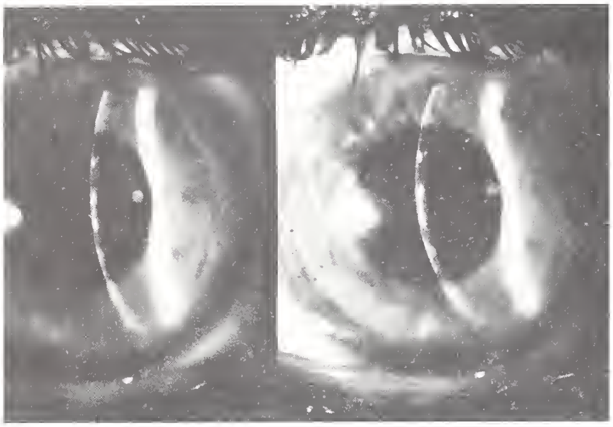


Figure 1

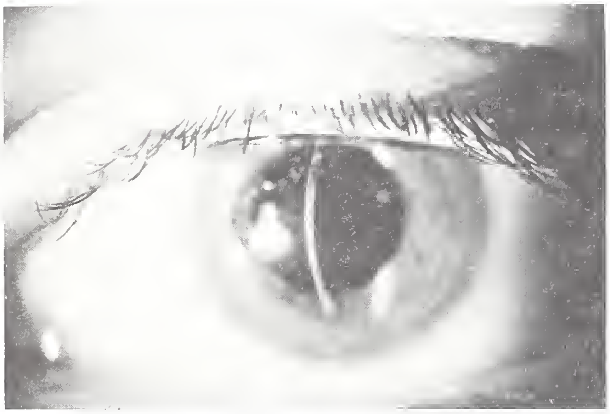


Figure 2

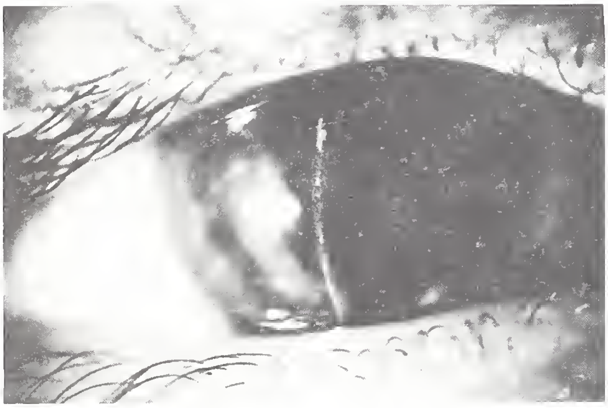


Figure 3

Summary

Three cases of presumed eye manifestations of Lyme disease have been presented. So far as these authors are aware, only one previous report of such eye findings has appeared in either the medical or eye literature, and that case resembles our first case, with optic nerve changes.[3] No previous reports of corneal changes have been reported.

The first case presented multiple neurologic palsies, and a late occurring optic neuritis, whose proximity to the proven acute episode of Lyme disease suggests a causal connection.

The last two cases were remarkably similar in appearance. Again the eye findings were late in onset, caused no pain, and only decreased vision. One case cleared slowly without treatment, and the other showed little response until topical steroid drops were added to systemic and topical tetracycline. Although not consistent with the appearance of luetic interstitial keratitis, the ability of a spirochete to cause corneal changes should not come as a surprise. The dramatic response to topical steroids, however, suggests some immunologic mechanism rather than a direct corneal infection with the spirochete.

REFERENCES

1. Steere AC, Duray P, Kaufmann D and Wormser G. Unilateral Blindness Caused by Infection with the Lyme Disease Spirochete, *Borrelia burgdorferi;* Annals of Internal Medicine Sept 1985, 103(3):382-4.
2. Steere AC, Malawista S, Craft JE, Fischer D, Garcia-Blanco M. LYME DISEASE First International Symposium; Yale Journal of Biology and Medicine 1984.
3. Wu G, Lincoff H, Ellsworth R and Haik B. Optic Disc Edema and Lyme Disease; Annals of Ophthalmology July 1986, 18(7):252-5.

Important Advances in Clinical Medicine

Epitomes of Progress—Plastic Surgery

The Scientific Board of the California Medical Association presents the following inventory of items of progress in plastic surgery. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in plastic surgery that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Plastic Surgery of the California Medical Association and the summaries were prepared under its direction.

Craniofacial Surgery for Fractures

One of the major spin-offs of craniofacial surgery has been the development of new approaches for treating major fractures of the craniofacial skeleton. The use of these techniques has resulted in shorter hospital stays, a more stable reconstruction, fewer secondary steps in the final reconstruction and, perhaps most important, a much improved aesthetic result.

The primary approach is through a complete dissection of the involved areas, primarily through a bicoronial incision as in congenital craniofacial problems but using lacerations for access as well. Radiographic evaluation is of course helpful to define the areas but a complete computed tomographic scan will offer the most help in deciding where the fractures are located. It is especially important that the major facial supporting areas (orbital, nasofrontal, zygomatic and pterygomaxillary buttresses) be adequately exposed, including the mandible when necessary. All of the bones thus exposed are then in a position to be carefully wired together in their proper position.

Areas of severe bone comminution or avulsion are bone grafted in the primary stage using split skull, split rib and iliac crest grafts as necessary. As a result of the meticulous repair of the fractures and using the strong supporting bone grafts contoured to obtain a normal anatomy, a stable craniofacial skeleton can be recreated that will rarely require extraskeletal fixation. In selected cases, mini-bone plates can be very helpful for the lower face and mandible, but they should be avoided as much as possible in areas of thin subcutaneous tissue such as the lateral orbital rims. Intermaxillary fixation can often be avoided by using the techniques described. The soft-tissue support thus obtained is one of the major factors for the improved results in these cases. All of the techniques known in congenital craniofacial operations must be used as necessary to reconstruct these areas of major acute injury. The lacrimal system has required additional operations for obstruction in only 17% of patients with injury to the area.

Complications have been amazingly few considering the degree of injury being treated by such techniques. Infection of soft and hard tissues has been the primary problem but sequestrums have only occurred in a small percentage in the two series reported. All of the medical specialties involved with the head would participate in the care for these complex injuries.

Douglas K. Ousterhout, D.D.S., M.D.
San Francisco

REFERENCES

Gruss JS: Naso-ethmoid-orbital fractures: Classification and role of primary bone grafting. Plast Reconstr Surg Mar 1985, 75:303-317.

Gruss JS, Mackinnon SE, Kassel EE, et al: The role of primary bone grafting in complex craniomaxillofacial trauma. Plast Reconstr Surg Jan 1985, 75:17-24.

Manson PN, Crowley WA, Yaremchuk MJ, et al: Midface fractures: Advances of immediate extended open reduction and bone grafting. Plast Reconstr Surg Jul 1985, 76:1-12.

Manson PN, Hoopes JE, Su CT: Structural pillars of the facial skeleton: An approach to the management of Le Fort fractures. Plast Reconstr Surg Jul 1980, 66:54-62.

Reprinted from *The Western Journal of Medicine*, October 1986.

Facial Palsy

Facial Nerve Paralysis remains a difficult challenge for plastic and reconstructive surgeons. Vast strides in this field have been made in the past ten years due in no small part to the sophistication of microneurovascular techniques. Even patients with long-standing unilateral palsy may be able to regain symmetry in repose and in voluntary facial responses.

The myriad of techniques that have been advocated to deal with facial palsy attests to the fact that none have given perfect results. Following nerve transection, immediate or early direct repair or cable grafting provides the best results. If reinnervation from the proximal ipsilateral seventh nerve is not possible, another peripheral nerve must be provided. This, however, must be done within six to nine months of the injury to assure reinnervation by one year. After that time the muscles will have poor, if any, motion. The hypoglossal, spinal accessory and phrenic nerves have all been used, but most surgeons feel that the donor deficit produced is too great, the resultant facial movements gross, reeducated voluntary control is poor and the lack of emotional response makes these techniques less than ideal.

Microneurovascular surgery has spawned the most promising procedures. Cross-face microneural grafting to bring voluntary and involuntary input from the contralateral facial nerve can reanimate existing facial muscles if done within the first six months, or can be used to innervate free vascularized muscle transfers.

A two-stage procedure using a cross-facial-sural nerve graft from the normal to the abnormal side, followed in six to eight months by a free microneurovascular transfer of an appropriate muscle to the previously placed nerve graft and local vessels, has a high success rate—80% to 90%. Some reports have shown that almost half the patients regain some degree of independent control of the reanimated side. The ideal choice for motor unit is not resolved, but the gracilis (whole or in part) or the pectoralis minor produced the best results.

Daniel S. Sellers, M.D.

Stephen H. Miller, M.D.

Portland

REFERENCES

Buncke HJ, Furnas DW (Eds): Symposium on Clinical Frontiers in Reconstructive Microsurgery—Vol 24, St Louis, CV Mosby 1984, pp 151-187.

Harrison DH: The pectoralis minor vascularized muscle graft for the treatment of unilateral facial palsy. Plast Reconstr Surg Feb 1985, 75:206-216.

Manktelow RT, Zuker RM: Muscle transplantation by fascicular territory. Plast Reconstr Surg 1984, 73:751-757.

Plastic Surgery for Nonwhites

The desire for aesthetic facial surgical procedures by nonwhite patients is increasing. Factors influencing this increase range from wishing to look less like a perceived ethnic prototype to the desire to resemble a star from the entertainment world.

By and large, Asian patients seek alteration of their eyelids and nose. Those of African and Malaysian background more often request a smaller nasal configuration.

The change in appearance from the hooded upper eyelid to a well-defined fold is often striking. Additionally, female patients report that applying eyelid makeup is easier. Methods vary but generally include surgical fixation of loose dermis to the underlying levator apparatus, establishing a new eyelid fold 6 to 9 mm superior to the eyelash margins.

Changes in nasal appearance usually involve elevating the nasal dorsum (profile), narrowing the alar bases (frontal) and providing a thinner, more defined nasal tip. Various alloplastic materials are currently in vogue for dorsal elevation, but these carry the risks of extrusion and displacement. Autogenous cartilage and bone grafts are more difficult to use but are more stable.

The methods used in nasal operations are not new, but are based on proven maneuvers—fitting the operation to the patient. As in all surgical procedures, careful patient selection, discussion of realistic expectations and skillful preoperative planning are essential.

Edward Falces, M.D.

San Francisco

REFERENCES

Falces E, Wesser D, Gorney M: Cosmetic surgery for the non-Caucasian nose. Plast Reconstr Surg Apr 1970, 45:317-325.

Hin LC: Oriental blepharoplasty: A critical review of techniques and potential hazards. Ann Plast Surg Nov 1981, 7:362-374.

Matory WE, Falces E: Non-Caucasian rhinoplasty: A 16 year experience. Plast Reconstr Surg Feb 1986, 77:239-251.

Keloid and Hypertrophic Scar

Penetrating wounds of the skin elicit a cascade of biologic and biochemical events including inflammation and a fibro-proliferative response that results in the deposition of collagen, noncollagenous proteins and proteoglycans. Scar tissue is the end product. The quality of a scar is directly related to the efficiency of the regulation of collagen production during wound healing and, specifically, the balance between new collagen synthesis and collagen degradation during the later stages of the process. Under certain circumstances, the equilibrium between collagen anabolism and catabolism is imbalanced, resulting in overproduction of collagen. In the extreme, hypertrophic scar or keloid may result.

The biologic differences between hypertrophic scar and keloid have yet to be completely characterized. Traditionally, hypertrophic scar has been classified as exuberant scar production within the boundaries of the original wound. A scar that overgrows and spreads beyond the borders of the original wound is called a keloid.

Biochemical and morphologic studies of the fibrillar collagen ultrastructure, the nature of chemical cross-linking of collagen molecules and the cell types inhabiting keloid and hypertrophic scar were conducted by Knapp and coworkers. They found that collagen fibers and fiber bundles showed an inverse correlation between degree of organization and scar abnormality. In addition, the collagen in skin and mature scars was highly cross-linked while that of hypertrophic scar and keloid was progressively less so. Three types of fibroblast seemed to populate the scars, with their relative distribution varying among the scar types. They concluded that hypertrophic scar and keloid are not distinct pathologic processes but, instead, represent progressively more aberrant activity in the continuum of the wound healing response.

Other evidence suggests that keloid fibroblasts produce significantly more collagen per cell than do fibroblasts derived from normal skin and normal scar. It may be that keloid fibroblasts have lost the ability to respond to feedback inhibitory signals that normally regulate wound healing.

Among other elements in the production of hypertrophic scar and keloid, variation encountered in the microvascular regeneration of the wound bed with low oxygen and high carbon dioxide levels has been implicated as a factor in promoting excessive collagen deposition and scar. Others have shown that the extracellular matrix of the wound exerts a powerful effect on the biosynthetic activity of cells; a hypertrophic scar or keloid could develop as a result of abnormal turnover of the wound matrix during the healing process.

The traditional treatment of hypertrophic scar and keloid has involved five general approaches: surgical procedures, pressure, irradiation, corticosteroids and other drugs. Currently, intralesional injection of triamcinolone acetonide alone or in combination with surgical correction appears to be the most popular means of dealing with these scars. The precise mechanism by which corticosteroids influence an abnormal scar is not known. It may be that the steroids influence collagen synthesis in scars by enhancing catabolic aspects of turnover. This may occur by removal of collagenase inhibitors or by promotion of the activity of collagenase present in the scar tissue.

Recently, the use of the neodymium-yttrium-aluminum-garnet laser has been explored in the treatment of keloid, and early clinical results are promising. The mechanism of action of laser irradiation to reduce keloid scarring appears to be associated with fibroblast inhibition. The influence of the laser on the integrity of fibrillar collagen also must not be discounted and is the subject of ongoing investigation.

T.R. Knapp, M.D.
Redding, California

REFERENCES

Abergel RP, Dwyer RM, Meeker CA, et al: Laser treatment of Keloids: A clinical trial and an in vitro study with Nd: YAG laser. Lasers Surg Med 1984, 4:291-295.

Chvapil M, Koopman CF Jr: Scar formation: Physiology and pathological states. Otolaryngol Clin North Am May 1984, 17:265-272.

Cohen IK, Diegelman RF: The biology of keloid and hypertrophic scar and the influence of corticosteroids. Clin Plast Surg Apr 1977, 4:297-299.

Kischer CW, Shetlar MR, Chvapil M: Hypertrophic scars and keloids: A review and new concept concerning their origin. Scanning Electron Microscopy 1982, 4:1699-1713.

Knapp TR, Daniels RJ, Kaplan EN: Pathologic scar formation—Morphologic and biochemical correlates. Am J Pathol 1977, 86:47-69.

Immediate Breast Reconstruction

Immediate reconstruction of the breast, done during the same operation as the ablative procedure, is being practiced more and more frequently. There are several factors responsible for this increase. Previously it was thought that immediate reconstruction might adversely affect the course of the disease following ablation. This concern now appears to be unwarranted. It was previously postulated that patients needed to have a period of mourning for the loss of a breast before reconstruction was attempted. This was based on the idea that acceptance of the reconstructed breast would be easier if a patient first went through this period of mourning. With the newer techniques now available, this is no longer necessary. Immediate reconstruction also eliminates the cost and anesthetic risk of a second procedure, a factor that has stimulated patient compliance. Current modern techniques of breast reconstruction have greatly improved the final cosmetic result and thus patient acceptance. Cooperation between plastic surgeon and general surgeon has led to improved preoperative markings and incision planning. This cooperation has helped to maintain medial breast skin whenever possible, thereby reducing medial scarring and making it increasingly easier to create unscarred visible cleavage. Similarly, correct planning is less likely to destroy the normal inframammary fold, a finding that has greatly improved the final cosmetic result.

Four methods are available today for immediate breast reconstruction. The method chosen is largely dictated by surgeon and patient preference and the amount of tissue available following the ablative operation.

- If the skin flaps left behind are thick enough, ample and viable, breast reconstruction may be easily achieved by the submuscular placement of an appropriately sized prosthesis. Nipple reconstruction and possibly a reconstructive procedure on the opposite breast to reduce any size discrepancies are evaluated after three months as a second procedure.

- If there is not enough skin available, though the existing flaps may be of adequate thickness, a two-stage procedure using a tissue expander may be used. The tissue expander is inserted and the wound allowed to heal. The expander is then gradually inflated percutaneously, over a period of weeks or months, until its volume is greater than that of the prosthesis to be inserted during the second procedure. Much like the expansion of the abdomen during pregnancy, this slow distension of the chest wall skin will allow sufficient laxity or stretch of the skin to

Nearly 80 million people couldn't picture their lives without it.

Carry the Caring Card.®

accommodate a prosthesis used to reconstruct the missing breast. A tissue expander has now been developed that, once inflated to the appropriate size, is simply left in position as a prosthesis, eliminating the necessity for a second procedure other than that required for reconstruction of the nipple.

- Rapidly gaining far greater acceptance and popularity is the use of the transverse rectus abdominis myocutaneous (TRAM) flap, using the skin below or around the umbilicus to replace the breast tissue removed. An added bonus is the abdominal lipectomy or so-called tummy-tuck procedure done at the same time. The plastic surgeon can elevate the flap at the same time that the general surgeon does the ablative procedure. With this technique, the overall duration of the operation is greatly reduced. The natural feel and more natural appearance have made this method the choice of many.
- When conditions such as previous abdominal scarring or other factors make this impossible, surgeons may opt to use the latissimus dorsi myocutaneous flap with a prosthesis.

In summary, immediate breast reconstruction is rapidly gaining greater acceptance, and current techniques, including the use of the TRAM flap, have improved the feel and look of the final result while not adversely affecting the ablative procedure or postoperative management of patients.

Avron Daniller, M.D.
Davis, California

REFERENCE

Scheflan M (Ed): Advances in Breast Reconstruction. Clin Plast Surg, Apr 1984, vol 11.

Immediate Treatment of Superficial Burns

Local cooling limits edema and prevents progressive thrombosis of the dermal capillaries that normally occur during the first few hours following burn injury. This can only be used either for burns of less than 5% of the body surface area or for selected areas, such as the face or hands. Applying cold (not freezing) water by immersion or covering with wet towels for 30 minutes has been beneficial even when started half an hour after the injury.

Following cooling, the injured part should be gently washed with soap and water to remove external dirt and contamination. Hair in and around the burn wound is shaved to prevent it entrapment in wound secretions. Broken blisters and loose skin are debrided by scissors excision. At this point the depth of the wound is assessed. The typical characteristics of the superficial partial thickness wound can be found: pain, blanching and capillary refill of the moist pink wound surface. Deeper and larger injuries will frequently require surgical consultation or referral to a burn center, but most smaller superficial injuries can be treated in an emergency department or a physician's office.

Antibiotics are not routinely prescribed to a healthy patient. Topical antibacterial creams, which require frequent dressing changes and cause pain and discomfort, are not needed for the care of a small burn treated on an outpatient basis. The superficial injury will heal on its own if protected. This is most easily done by covering the cleaned wound with a single layer of coated fine mesh gauze (such as Xeroform, Adaptic, Vasoline and the like). This is covered with enough bulky absorbent material to collect wound secretions and prevent their accumulating at the wound surface or leaking through the dressing. A firm outer wrap is then applied to immobilize the injured part and prevent external trauma.

The dressing should be changed by a physician at 48 hours. The adherent inner gauze layer is not removed unless there are excessive secretions or evidence of infection. The absorbent layer is reapplied and the wound reexamined in another four to five days when the dressing is again changed. As the wound heals by reepithelialization, the gauze layer will spontaneously separate. With this method, most superficial burn wounds will heal in 10 to 14 days with only three to four dressing changes and minimal patient discomfort and inconvenience. In the few cases of wounds that are not healed by two to three weeks or that show signs of increased depth or infection, treatment can be switched to topical antibacterials and the patient referred for consultation.

Immediate cooling of the burn wound, followed by cleansing and protective dressings with infrequent changes, has proved to be a safe, cost-effective method for the outpatient treatment of burns.

David H. Frank, M.D.
San Diego

REFERENCES

Boykin JV Jr, Ericksson E, Sholley MM, et al: Cold-water treatment of scald injury and inhibition of histamine-mediated burn edema. J Surg Res Aug 1981, 31:111-123.

De Camara DL, Raine T, Robson MC: Ultrastructural aspects of cooled thermal injury. J Trauma 1981, 21:911-919.

Haynes BW Jr: Emergency department management of minor burns, In Wachtel TL, Kahn V, Frank HA (Eds): Current Topics in Burn Care. Rockville Md, Aspen Systems, 1983, pp 19-24.

Surgical Procedures for Down's Syndrome Stigmata

Significant interest in the surgical correction of the facial stigmata of the Down's syndrome followed the report of Lemperle and Radu in 1980. The operation uses standard well-established plastic surgical techniques individually tailored to a patient's particular needs. The most useful procedure is the reduction of an excessively large tongue to permit comfortable oral closure and eliminate an unsightly open-mouth position. Other recommended procedures include Z-plasties to eliminate the medial canthal webs, nasal augmentation, lateral canthoplasty, malar and chin augmentation and sharpening of the cheek and submandibular contours by excising the subcutaneous fat.

The indications for this surgical correction, however, remain controversial. Critics note that severely mentally impaired persons seem unaware of their appearance and thus are not benefited by cosmetic improvement. They point out that even if the Down's syndrome characteristics are eliminated and a patient is made physically attractive in repose, behavior and facial animation betray the presence of retardation. Proponents suggest that some children are afforded limited social opportunities because of their family's embarrassment. Thus, eliminating the facial stigmata of the Down's syndrome should improve the patients' and their families' quality of life by enhancing social interaction. Unfortunately, there are no well-done studies that support this impression. Also, many families grasp at any suggested treatment to leave no stone unturned for their loved one. In their zeal to do everything possible, parents may lose their objectivity and become easily persuaded to subject their child to an "Emperor's clothes" operation.

Operative intervention must be tailored to the entire sociopsychological milieu of the patient, the family and their interactional environment. The decision for surgical correction must be made by an informed and well-counseled family. Sometimes attempts at attitudinal change may be more traumatic than an operation. Such cases should be recognized by the treatment team who should not be judgmental and deny or discourage a surgical procedure because of their personal bias.

Simple reduction of a very large tongue can benefit even a profoundly retarded person, both by improving the airway and by eliminating a feature that can be a severe social impediment even in sheltered environments. For those few patients with the Down's syndrome who function at a relatively high intellectual level, the benefits of an operation are less controversial. Such patients will often have enough insight to make their decision, and usually actively solicit treatment.

Garry S. Brody, M.D.
Downey, California

REFERENCES

Belfer M: Facial plastic surgery in children with Down's syndrome (Discussion). Plast Reconstr Surg Sep 1980, 66:343-344.

Ebbin AJ: Facial plastic surgery in children with Down's syndrome (Discussion). Plast Reconstr Surg Sep 1980, 66:345.

Lemperle G, Radu D: Facial plastic surgery in children with Down's syndrome. Plast Reconstr Surg Sep 1980, 66:337-342.

Olbrisch RR: Plastic surgical management of children with Down's syndrome: Indications and results. Br J Plast Surg Apr 1982, 35:195-200.

Face-lift Techniques Today

For the best results, it is necessary to define the goal of an aesthetic facial operation. Most patients seeking such improvement of the entire face and neck wish to have their good looks restored, to appear as alert and youthful as possible or to improve features that have never been pleasing. Almost all patients would like the detectability of the scars minimized and the secondary problems, such as abnormal hair patterns following the surgical procedure, eliminated or minimized. The attainment of perfection is not possible; nevertheless, surgeons should use all of their diagnostic and surgical skills to try to reach this goal.

A precise anatomic diagnosis of the cause of facial problems is essential to plan the use of the structures to achieve maximum improvement. A detailed study of the contours and proportions of the forehead, cheeks, eyelids, eyebrows, lips, chin, neck and ears is necessary for planning the location of the incisions and the new position of the skin, subcutaneous tissue, fat and deep structures of the face. For example, if more than 2.5 cm of skin is to be discarded in the direction of the temporal hair, most patients will have a more pleasing appearance, without abnormal elevation of the hair, if the incision is placed to follow the hairline in the temporal area and to allow the hair in the sideburn area to be lower than the top of the ear. Creating a distance between the lateral canthus of the eyelids and the temporal hair of greater than 4 cm gives an older appearance, and less than 4 cm a younger appearance. In addition, the portion of the ear skin between the earlobe and the tragus should be preserved if the incision is made along the edge of the tragus, as the apperance of the tragus after the procedure is nearly as important as the appearance of the nasal tip. The tragus size and contour should be in keeping with the size of the ear of each patient, not a standard height or width. The location of the incision in the occipital area will determine whether a female patient will be able to wear her hair pulled backward in a bun or pulled upward, or will be limited to a hairstyle that would hide a "step deformity" in the occipital area.

Improving the appearance of the forehead, face and neck has been made possible by techniques that correct problems of the skin, fat, muscles and superficial supporting fascia. Techniques previously used, which relied on skin traction alone to compress or elevate fat and sagging muscles, frequently resulted in only a moderate improvement of short duration, and often the tension would result in wide or depressed scars. The many details of a handsome or a beautiful face that together create the appearance of youth or beauty require careful preoperative planning. The changes in facial contour that occur with the aging process are related to changes in the platysma muscle, superficial musculoaponeurotic system muscles of expression, subcutaneous tissues and skin. Changes of the hair contour and the eyebrow position all take part in the appearance of annoyance, sadness, tiredness or alertness, youth and vitality.

The attention to details of the anatomic diagnosis can be followed by an exact and appropriate plan for skillfully and safely doing the surgical correction. The placement of skin incisions to minimize scar detectability and to avoid abnormalities of hair pattern is very important. These postoperative abnormal hair patterns may interfere with work and recreational activities. The superficial musculoaponeurotic muslces with their skin attachments to the nasolabial fold, upper lip, lower lip, chin and submental area require precise shifting to produce the maximum support to these areas and to improve the folds of the platysma muscle in the submental area. This shift in an upward and lateral direction not only produces an improvement at the time of the operation, but decreases the tension on the scar at the temporal area. Consequently, the possibility of reducing scar tension is better when the deep layer of the superficial musculoaponeurotic system and platysma muscle are used for support.

There is no standard "cookbook" operation that will deliver the best results for each face and neck problem. The best result is accomplished by many modifications of several procedures, designed specifically for each patient's particular problem.

Bruce F. Connell, M.D.
Irvine, California

REFERENCES

Connell BF: Eyebrow and forehead lifts, chap 22, In Courtiss EH (Ed): Male Aesthetic Surgery. St Louis CV Mosby, 1982, pp 243-251.

Connell BF, Gaon A: Surgical correction of aesthetic contour problems of the neck. Clin Plast Surg 1983, 10:491-505.

Guerrero-Santos J, Espaillat L, Morales F: Muscular lift in cervical rhytidoplasty. Plast Reconstr Surg 1974, 54:127-131.

ADVISORY PANEL TO THE SECTION ON PLASTIC SURGERY

John O. Strong, M.D.
Advisory Panel Chair
CMA Scientific Board Representative
University of California, Irvine
Santa Ana

Roland T. Minami, M.D.
CMA Section Chair
Greenbrae

Genevieve A. MacDonald, M.D.
CMA Section Secretary
Canoga Park

Bernard S. Alpert, M.D.
CMA Section Assistant Secretary
San Francisco

Matthew C. Gleason, M.D.
San Diego

Thomas J. Zirkle, Jr., M.D.
Section Editor
Loma Linda University

Lars M. Vistnes, M.D.
Stanford University

Avron Daniller, M.D.
University of California, Davis

Harvey Zarem, M.D.
University of California, Los Angeles

Jack Fisher, M.D.
University of California, San Diego

Stephen J. Mathes, M.D.
University of California, San Francisco

John M. Goin, M.D.
University of Southern California

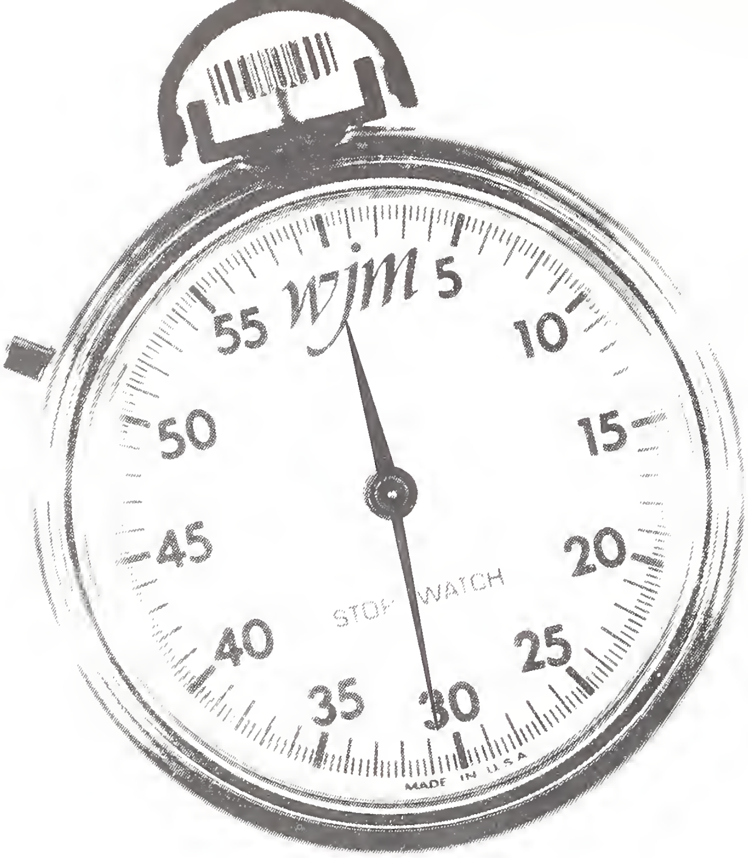
Robert Fagella, Jr., M.D.
Sacramento

Dan S. Smith, M.D.
La Mesa

Ronald E. Iverson, M.D.
Pleasanton

Edward V. Henjyoji, M.D.
Westlake Village

Angelo Capozzi, M.D.
San Francisco



TIME to subscribe

Consider a few features of
The Western Journal of Medicine:

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

Enclosed is $_______ to cover _______ subscriptions.
Subscription renewal ☐ Regular subscription ☐
Foreign subscription ☐

TO: ______________________________

Street ______________________________

City/State/Zip ______________________________

Specialty ______________________________

Gift Card to read "From ______________________________"

The Western Journal of Medicine

Please mail this coupon with
enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year,
$90 2 years

Trauma in the Elderly: A Statewide Perspective

LINDA C. DEGUTIS, MSN, AND CHRISTOPHER C. BAKER, M.D.

ABSTRACT—Trauma has been called the epidemic of modern society and is the leading cause of death in Americans under 44. In addition, trauma has a disproportionate impact on the elderly. In order to study this issue, admissions of elderly patients (age ≥ 65) to hospitals in Connecticut were studied for one year (7/83-6/84).

There were 2,756 patients studied. Demographic data revealed a mean age of 78.4; 73.6% of patients were female, 97% were white, and 59.2% had preexisting cardiovascular and/or one of several chronic diseases. Falls accounted for 85.8% of the injuries, and 43% of all patients sustained hip fractures. Injury severity scores were generally low (mean 7.8, range 1-60). There were 132 deaths (4.8% mortality), 42.4% of which were in patients with hip fractures (4.8% mortality). The most common causes of death were multiple organ failure (34.8%), cardiac arrest (12.9%), and central nervous system injury (11.4%). One third of the patients who presented to the hospital in shock died (22/65). Twenty-five percent of the deaths were deemed preventable. When functional outcome was assessed upon discharge, only 34% had returned to baseline while 47.8% had minimal disability and 15.1% had moderate to severe disability. It is estimated that elderly trauma patients represented 0.66% of hospital admissions, 2.4% of admissions from the emergency service, and 24% of all trauma admissions.

Trauma in the elderly is an important health problem, and relatively minor injuries often lead to admission in this age group. Although the mortality rate is low (4.8%), nearly half the patients were judged to have some degree of disability at discharge. The elderly should be targeted as a high risk group following trauma and should receive aggressive in-hospital care and outpatient rehabilitation to prevent mortality and morbidity.

Introduction

Trauma in the elderly (age 65 and over) accounts for approximately 30,000 deaths each year and is the fifth leading cause of death in this age group. The mortality rate for injury is highest for those over age 75, and for individuals over 85 it is nearly 300 per 100,000 population.[1] The elderly also have the highest hospital admission rate for injury although they have the lowest rates for injuries treated in emergency departments. This is primarily due to the frequency of orthopedic injuries, especially hip fractures, requiring hospital admission in this group. These injuries lead to a high frequency of disability as well as mortality. Because of this high morbidity and mortality rate, the elderly consume nearly one-third of the health care resources expended in trauma care.[2]

The problem of injury in the elderly will continue to grow in the next several decades, as it is predicted that the elderly population will double over the next 50 years. Americans over age 75 will comprise up to 45% of the elderly population and the number of individuals over age 85 will triple, from 2 million to 6 million.[3] As a result, there will be an increased number of individuals at risk for mortality and morbidity due to injury and the costs of care for the elderly will greatly increase.

While motor vehicle crashes account for the majority of injuries and deaths in younger age groups, falls are the most common cause of injury in the elderly. Thirty-five to 40% of individuals over age 65 will suffer at least one fall each year and this risk increases dramatically with advancing age.[6]

The elderly are predisposed to falls for various reasons. Because of their high incidence of chronic illness, they are likely to require medications that may cause orthostatic hypotension, confusion, lethargy, or vertigo. Older people are at increased risk because of changes in vision resulting from cataracts, glaucoma, presbyopia, and macular degeneration. Chronic inactivity contributes to a decrease in muscle tone. Nutritional problems are common, resulting from decreased appetite, dental problems, and alterations in metabolism and glucose tolerance. Loss of hearing occurs gradually and decreases the ability of the aged person to respond to noises that may serve as warning of imminent danger. Cardiovascular disorders and CNS disorders may cause dizziness, vertigo, or weakness.

LINDA C. DEGUTIS, MSN, Trauma Coordinator; Lecturer, General Surgery; CHRISTOPHER C. BAKER, M.D., Associate Professor of Surgery; Director of Trauma Center; both of the Department of Surgery, Yale University School of Medicine.

Presented at the American Public Health Association Annual Meeting, Washington, DC, November 1985.

Other factors that place the elderly at risk for falls are environmental factors such as loose scatter rugs, poor lighting, sidewalk cracks, ice, and pets. Institutional accidents generally occur when a confused patient falls out of bed. Many elderly individuals as well as their families and care providers are not cognizant of the environmental risk factors and therefore do not alter them to assist in preventing falls.

In order to address the growing problem of trauma in the elderly adequately, several questions must be answered. First, what are the most common reasons for admission of the elderly patient to the hospital after injury? Second, what is the outcome for this group of patients? Third, do co-morbid factors have an effect on outcome in injured elderly patients? Fourth, what are the most frequent causes of death in these patients and fifth, can some of the deaths be prevented? We report a statewide study that attempts to address some of these questions.

Materials and Methods

Patients included in this study were those age 65 and over who were admitted to acute care hospitals as a result of injury. Data were collected for one year (July 83 through June 84) in a prospective fashion by investigators at each of 21 hospitals in the state (Table 1). The hospitals ranged in size from a 50 bed community hospital to a 1,000 bed private teaching hospital. The hospitals were located in urban, suburban, and rural areas.

Table 1

HOSPITALS AND INVESTIGATORS PARTICIPATING IN STUDY

Backus Hospital	Thomas Bell, M.D.
Bridgeport Hospital	John MacArthur, M.D.
Bristol Hospital	Daniel Scopetta, M.D.
Charlotte Hungerford Hospital	Thomas Danaher, M.D.
The Griffin Hospital	Joseph Dineen, M.D.
Hartford Hospital	Lenworth Jacobs, M.D.
Hospital of St. Raphael	Gerald Peskin, M.D. Daniel Harwood, M.D.
Lawrence and Memorial Hospital	Michael Deren, M.D.
Meriden-Wallingford Hospital	Hamp Pratt, M.D.
Middlesex Memorial Hospital	William Longo, M.D.
Milford Hospital	Arvind Gupta, M.D.
Mount Sinai Hospital	Joel Deutsch, M.D.
New Britain General Hospital	Gerald Strauch, M.D.
Park City Hospital	Michael Kelleher, M.D.
Rockville General Hospital	Fayta Agarwal, M.D.
St. Francis Hospital	Donald Becker, M.D.
St. Joseph's Hospital	Frank Scarpa, M.D. Douglas Smego, M.D.
Waterbury Hospital	Robert Swaney, M.D.
Winsted Hospital	Richard Dutton, M.D.
World War II Veteran's Memorial Hospital	Stanley Friedman, M.D.
Yale-New Haven Hospital	Christopher Baker, M.D. Linda Degutis, MSN

The variables included in the analysis were age, sex, race, mechanism of injury, presence of hip fracture, injury severity score, previous disease, presence and level of shock, complications, and functional outcome at the time of discharge.

For those patients who died, additional data concerning cause of death, time of death, site of death, preventable versus non-preventable death, and autopsy results (when available) were also analyzed. The injury-severity score (ISS) was calculated according to the methodology described by Baker.[4] Data were analyzed using the SAS package at the Yale Computer Center.

Results

The number of patients entered into the study was 2,756. The hospital with the fewest patients in the study admitted 14 patients with injury while the greatest number reported from a single hospital was 261.

Demographics

Of the 2,756 patients studied, 2,028 (73.6%) were female and 728 (26.4%) were male. The mean age was 78.4 years with a range of 65-100. The majority, 2,666 (96.9%) of the patients, were Caucasian with the remainder Black 38 (1.4%), Oriental 29 (1.1%), and Hispanic 16 (0.6%).

Previous Disease

The majority of the patients had pre-existing chronic diseases. Cardiovascular disease was the most common, present in 1,628 (59.2%) of the patients. The prevalence of other disease processes was arthritis 554 (20.1%), COPD 320 (11.6%), diabetes 312 (11.3%), cancer 213 (7.7%), and cirrhosis 32 (1.2%) (Table 2). Some patients had more than one pre-existing illness.

Table 2

INCIDENCE OF PRE-EXISTING DISEASE

	N	*(%)*
Cardiovascular	1,628	(59.2)
Arthritis	554	(20.1)
COPD	320	(11.6)
Diabetes	312	(11.3)
Cancer	213	(7.7)
Cirrhosis	32	(1.2)

Mechanism of Injury

The most common cause of injury in this group was falls, which accounted for 85.8% (2,348) of the injuries. Other mechanisms of injury included: motor vehicle accident-driver 89 (3.3%), motor vehicle accident-passenger 72 (2.6%), gunshot wound 52 (1.9%), pedestrian 32 (1.2%), assault 16 (0.6%), and stab wound 8 (0.3%). The remainder, 117 (4.3%), of the injuries were attributed to various other causes including burns and accidents with machinery and tools. The mechanism of injury was not documented in 22 (0.8%) cases (Table 3).

Injury Severity

The majority (2,373 [86.1%]) of the patients experienced injuries to the musculoskeletal system, with the greatest number (1,174) of these being hip fractures. The mean ISS was 7.8 (±4.9) with a range from 1-70.

Hip Fractures

Forty-three percent (1,174) of the patients suffered hip

Table 3
MECHANISM OF INJURY

	N	*(%)*
Fall	2,348	(85.8)
MVA-driver	89	(3.3)
MVA-passenger	72	(2.6)
Gunshot wound	52	(1.9)
Pedestrian	32	(1.2)
Assault	16	(0.6)
Stab wound	8	(0.3)
Other	117	(4.3)

fractures. Of this sub-group, 913 (77.8%) were female and 261 (22.2%) were male. Of the females in the entire study group, 49.5% had hip fractures and 43.4% of the males had hip fractures. There were 56 deaths in patients with hip fractures, accounting for 42.4% of all deaths in the study. The mortality rate in the hip fracture group was equal to the mortality rate for the entire study group (4.8%). The most frequent cause of death in these patients was multiple organ failure. There was no correlation between previously diagnosed arthritis and the incidence of hip fracture.

With respect to functional outcome at the time of discharge, patients with hip fractures fared somewhat worse than the remainder of the group, although this difference was not statistically significant (Table 4). Three hundred twenty-two (27.8%) of the patients with hip fractures were reported to have returned to their baseline level of function. Minimal disability existed at the time of discharge for 600 patients (51.1%) and 252 patients (21.5%) experienced moderate to severe disability.

Table 4
FUNCTIONAL OUTCOME

	Total Group *N (%)*	*Patients with hip fractures* *N (%)*
Return to baseline	899 (34.3)	322 (27.4)
Minimal disability	1,254 (47.8)	600 (51.1)
Moderate to severe disability	396 (15.1)	252 (21.5)
Unknown	75 (2.9)	–

Table 5
COMPLICATIONS

	Lived *N (%)*	*Died* *N (%)*	*Total* *N (% of study total)*
Wound infection	31 (100.0)	0 (0.0)	31 (1.1)
Sepsis	17 (47.2)	19 (52.8)	36 (1.3)
SOF	38 (54.3)	32 (45.7)	70 (2.5)
MOF	1 (2.2)	44 (97.8)	45 (1.6)

Shock

Sixty-five patients (2.4%) were hypotensive (systolic BP≤ 100 mmHg) upon admission to the hospital. Mild shock (systolic BP 90-100 mmHg) occurred in 39 (60%), moderate shock (systolic BP 60-90 mmHg) in 20 (31%), and profound shock (systolic BP≤60 mmHg) in six patients (9%). Twenty-two (34%) of the patients in shock died (Table 5). Sixteen patients (25%) experienced prolonged (>30 minutes) shock while 43 patients (66%) had a short (<30 minutes) period of shock.

Table 6
SURVIVAL FOR DEPTH AND LENGTH OF TIME IN SHOCK

	Length of Time		
Level	*Short (<30 minutes)*	*Long (>30 minutes)*	*Total*
Mild	*8/32 (25.0)	2/3 (66.7)	10/35 (28.6)
Moderate	1/9 (11.1)	4/10 (40.0)	5/19 (26.3)
Profound	1/2 (50.0)	3/3 (100.0)	4/5 (80.0)
Total	10/43 (23.3)	9/16 (56.3)	19/59** (36.5)

*died/total (% mortality)

**complete data was only available in 59 of the 65 patients

Complications

There were 182 major complications in the study group. These included wound infection (31), sepsis (70), single organ failure (SOF, 36), and multiple organ failure (MOF, 45). The mortality associated with these complications is listed in Table 6.

Deaths

There were 132 deaths in the study group, accounting for a mortality rate of 4.8%. As previously stated, the mortality rate was the same for patients with hip fractures and the remainder of the group. Causes of death were: CNS injury 15 (11.4%), heart injury 1 (0.8%), aortic injury 2 (1.5%), lung injury 4 (3.0%), hemorrhage 3 (2.3%), sepsis 5 (3.8%), MOF 36 (27.3%), cardiac arrest 17 (12.9%), and other 29 (22.0%) and unspecified 20 (15.2%), as shown in Table 7.

Eighty-six (65.2%) of the deaths occurred later than 48 hours (late deaths) after injury. Early deaths (<48 hours from injury to death) occurred in 22 patients (16.7%). In 24 patients (18.2%), the time of death was not specified.

Three deaths (2.3%) occurred in the operating room, 34 (25.8%) in the intensive care unit (ICU), and 64 (48.5%) on the ward. The site of death was unspecified in 31 patients (23.5%).

One death (0.8%) was classified as definitely preventable. Thirty-two deaths (24.2%) were classified as possibly preventable, 61 (46.2%) as not preventable, and 38 (28.9%) were unclassified. Although these classifications were based on clinical course and presumed cause of death, only 11 could be based on autopsy results as the majority (121, 91.7%) of the patients who died did not undergo autopsies.

Functional Outcome

Functional outcome at the time of discharge from the hospital was assessed in all patients who survived. Thirty-four percent (899) of these patients returned to their

Table 7
DEATHS

Cause	*N*	*(%)*
CNS injury	15	(11.4)
Lung injury	4	(3.0)
Aortic injury	2	(1.5)
Heart injury	1	(0.8)
Hemorrhage	3	(2.3)
Multiple organ failure	36	(27.3)
Cardiac arrest	17	(12.9)
Other	29	(22.0)
Unspecified	20	(15.2)

baseline level of function. Minimal disability occurred in 1,254 patients (47.8%) and moderate to severe disability in 396 (15.1%). Data covering functional outcome were unavailable in 75 patients (2.9%).

Discussion

As the population ages and life expectancy increases, a larger portion of the population becomes part of the elderly group and is at increased risk for morbidity and mortality as a result of injury. We have demonstrated that a large number of elderly patients are admitted to a hospital following injury, although they are admitted with relatively low injury severity scores.

The mortality rate for this elderly group of trauma patients with relatively low ISS did not differ from the mortality rate of younger trauma patients with more severe injuries (ISS, 26.8) at a large trauma center.[5] As age increases, the individual is at greater risk for death and disability than younger individuals with comparable degrees of injury. There are other ways in which the aged population differs from the younger age groups with respect to injury.

Since the most common injury was hip fracture, the risk factors for this injury must be assessed. One of the questions that may be raised, especially in patients with osteoporesis, is which occurred first—the hip fracture or the fall. One would predict that the occurrence of hip fracture would be significantly higher in females in this age group, however, this study demonstrated no significant difference between males and females with respect to hip fractures. In addition, osteoarthritis did not seem to increase the risk of hip fracture.

Deaths in this patient group were most likely to occur more than 48 hours after injury. The majority of these were due to multiple organ failure, and patients most frequently died on the ward. This contrasts with younger patients who most often die of central nervous system injury in an intensive care unit. The problem of categorizing deaths as preventable or not preventable was more difficult in the elderly because of the very low autopsy rate. We do not know whether this was due to lack of physician requests for autopsy or to refusal of permission for autopsy by the family.

Those individuals who did survive experienced a relatively high frequency of disability at discharge. Disability assessment was difficult and was performed subjectively by the investigator at each institution. However, it seems apparent that many of these individuals were unable to return to their prior level of function upon discharge from the hospital. Many of these patients required some type of home care or assistance at home upon discharge while others were transferred to extended care facilities. The study did not assess what portion of the group received any sort of rehabilitation either in the hospital or after discharge, and whether rehabilitation was of value in these patients.

This study raises more questions than it answers. It addresses several issues with respect to trauma in the elderly that require further study. Prevention of injury would be useful in reducing morbidity and mortality in this group. In addition to prevention of injuries, efforts at rehabilitation must be initiated for this high risk population. Similar to the findings of Oreskovich,[7] injury appeared to be the event that moved these elderly people from having an independent existence to one of disability and dependence.

The effects of pre-existing disease on outcome after injury need to be more closely studied. The development and evaluation of rehabilitation programs for this age group has yet to be done. While there is some information concerning the costs of injury in this group, there has been no cost-benefit analysis nor has an effective system been devised to determine which individuals would benefit most from aggressive treatment and rehabilitation.

In order to study the problem of trauma in the elderly further and to identify solutions to this problem, we propose the following goals for the future:

1. Develop nationwide strategies aimed at prevention of injury.
2. Heighten efforts toward aggressive rehabilitation programs.
3. Utilize trauma registries to study the epidemiology and pathophysiology of trauma in the elderly and its costs to society.

It is only through the development of programs aimed at prevention of injury, aggressive treatment of survivable injury, and rehabilitation of patients with disability that this growing public health problem will be solved and the costs to patients, families, and society will be decreased.

REFERENCES

1. Baker SP, O'Neill B, Karpf RS: The Injury Fact Book. Lexington MA: D.C. Heath and Company, 1984.
2. Mueller MS, Gibson RM: Age difference in health care spending. Soc Secur Bull 1976, 36:18.
3. Binstock RH, Shanas E (eds): Handbook of Aging and the Social Sciences. New York: Van Nostrand Reinhold Company, 1985.
4. Baker SP, O'Neill B, Haddon W, Long WB: The injury severity score: a method for describing patients with multiple injuries and evaluating emergency care. J Trauma 1974, 14:187-196.
5. Baker CC, Degutis LC: A trauma service does make a difference. Unpublished manuscript, 1985.
6. Rowe JW, Besdine RW (eds): Health and Disease in Old Age. Boston: Little, Brown and Company, 1982.
7. Oreskovich MR, Howard JD, Copass MK, Carrico CJ: Geriatric Trauma: Injury Patterns and Outcome. J Trauma 1984, 24:565-572.

Lorazepam as an Adjunct to Antiemetic Therapy in Patients Receiving Cytotoxic Chemotherapy

LAURIE L. BRICELAND, PHARM.D.

Introduction

In a large number of cancer patients receiving cytotoxic agents, post-chemotherapy nausea and vomiting (N/V), as well as anticipatory nausea and vomiting (ANV), seriously compromise the quality of life and ability to comply with chemotherapy protocols, thereby decreasing chances for survival and curability.[8,14] It is believed that ANV is a learned response which varies directly with the severity of the post-chemotherapy emetic effects and requires a "memory imprint" for conditioning.[12,15] Thus, an agent to block short-term memory of the noxious chemotherapy experience is desirable. Case reports[5,10] suggest that lorazepam (Ativan®), an anxiolytic benzodiazepine known to produce anterograde amnesia, given in conjunction with standard antiemetics, might be effective in the treatment of chemotherapy-induced emesis.

Pharmacology

The mechanism by which lorazepam induces lack of recall is not clearly characterized. It is known that lorazepam does not affect retrieval of stored information.[3] The anterograde amnesic response is dose-related, with higher doses (≥ 4mg) of lorazepam inducing antirecall effects that persist for a longer period of time and occur in a larger percentage of patients. However, amnesia is not necessarily correlated with sedation, since sedation after intravenous lorazepam may remain high, while antirecall effects decline.[1]

Pharmacokinetics

After oral administration, lorazepam is completely and rapidly absorbed, with peak plasma concentrations occurring within two hours. Onset of clinical activity following intravenous lorazepam is 30 minutes; this much slower onset of action than the prototype benzodiazepine, diazepam, is due to the decreased lipophilicity of lorazepam. The decreased lipophilicity not only accounts for the slower rate of lorazepam's passage into the central nervous system (CNS), but also contributes to the decreased distribution into peripheral tissues. Thus, "effective" brain concentrations may persist longer, and single doses of lorazepam appear to have a longer duration of action (po/IV = 4-6 hours) than diazepam, regardless of lorazepam's shorter elimination half-life (mean = 15 hours). Lorazepam is primarily metabolized by glucuronide conjugation to inactive metabolites and is eliminated by renal excretion. The half-life of lorazepam is not influenced by the aging process, nor is elimination impaired in patients with renal dysfunction.[1] The above mentioned favorable pharmacokinetic properties (i.e. short half-life, long duration of activity, inactive metabolites) support the selection of this benzodiazepine for widespread use as an adjunct antiemetic in the cancer patient population.

Clinical Trials

There are several variables which make it difficult to evaluate chemotherapy-induced N/V clinical trials. Groups of patients under study are not homogeneous, as each patient will have different underlying tumors at varied stages of development. Previous experience with chemotherapy may negatively condition patients and therefore bias the response rates to antiemetics. Furthermore, "nausea" is a *subjective* parameter, and is very difficult to assess from patient to patient. Pharmacologic variables also complicate assessment of clinical trials: Chemotherapy protocols vary in terms of agent, dose, schedule, and route of administration. Patients may or may not be receiving concurrent antiemetics, which also differ in terms of specific agent, dose and route of administration. Lastly, patients treated on an ambulatory versus hospitalized basis may be treated differently, thus resulting in variable treatment outcomes.

A. Lorazepam as an *adjunct* antiemetic agent

Regardless of the above limitations, several trials evaluating the usefulness of lorazepam as an adjunct to standard antiemetic therapy (i.e., phenothiazines, metoclopramide, etc) have been conducted. Prompted by case reports[5,10] claiming that lorazepam improves the patient's tolerance of chemotherapy, Semrad and colleagues[13] assessed patient acceptance of lorazepam-induced amnesia. Intramuscular lorazepam (4mg, 2 hours prior to chemotherapy [chemo]) and prochlorperazine (25mg supp q4h) were administered to 18 ovarian cancer patients receiving low dose cisplatin. Ninety-six percent of the patients reported

---

LAURIE L. BRICELAND, PHARM.D., Clinical Fellow in Antibiotic Management, Hartford Hospital.

This new series on Drug Information Updates from the Hartford Hospital are supplied by Charles H. Nightingale, PH.D., Director of Pharmacy Services, Hartford Hospital.

Editors: Moses Sing Sum Chow, Pharm.D. and Robert A. Quercia, M.S., R.Ph.

lack of recall of chemotherapy event for ≥ 8 hours, while *all* patients believed the amnesic effect of lorazepam was beneficial.

To further characterize the role of lorazepam as an adjunct antiemetic, Bishop et al[2] conducted a randomized, double-blind crossover study of prochlorperazine (25mg supp q6h) plus lorazepam (0.05mg/kg SL, 30 min. prior to chemo) vs. prochlorperazine plus placebo in 80 patients receiving various emetogenic agents. Lorazepam significantly reduced the severity and duration of N/V, and caused significantly more sedation, when compared to placebo (35% vs 14%, respectively). It is unclear whether the beneficial effect of lorazepam on N/V reflects the degree of sedation, anti-anxiety, and amnesia, or involves a more specific antiemetic effect. Overall, patients preferred the lorazepam-containing regimen over placebo.

Gagen and co-workers[6] also confirmed the antiemetic efficacy of lorazepam in a randomized crossover trial comparing the active single agent metoclopramide, in high dosage, vs dexamethasone plus lorazepam (2-4 mg IV before chemo, followed by 2-4mg po/IV 1 hr after chemo). In 44 patients receiving a variety of emetogenic agents, the dexamethasone/lorazepam group reported significantly reduced severity (26% vs 13%) and duration (44% vs 23%) of N/V as compared to the metoclopramide group. Although significantly more side effects (i.e. drowsiness, dizziness, etc.) were noted with the dexamethasone/lorazepam group, there was decidely a strong patient preference for the addition of lorazepam (70% vs 12%) as compared to metoclopramide. The authors recommended that due to the sedative amnesic effect of lorazepam, patients receiving lorazepam should be under supervision, as N/V episodes still occur. To date, no cases of aspiration have been reported.

Most recently, Kris and others[7] studied lorazepam at each of three dosage levels to determine if a dose-response relationship existed for both the advantageous and toxic effects of lorazepam. Sixty-five patients with no prior chemotherapy experience receiving high-dose cisplatin were randomized into four groups to receive either a combination of metoclopramide, dexamethasone and diphenhydramine, or a combination of metoclopramide, dexamethasone and lorazepam (lorazepam dose either $1.0 mg/M^2$, $1.25 mg/M^2$, or $1.50 mg/M^2$). No differences in response rates were found between the four treatment groups, again confirming the efficacy of lorazepam in combination with standard antiemetics in treating cisplatin-induced emesis. Consistently, more sedation was noted with all of the lorazepam-containing regimens, with the highest lorazepam dose ($1.5 mg/M^2$) demonstrating superior patient satisfaction and less anxiety during therapy. Overall, the regimens containing lorazepam produced better subjective evaluations.

B. Lorazepam as a *single* antiemetic agent

Two trials[4,9] have evaluated the usefulness of lorazepam as a single antiemetic agent. Although both trials reported clinical efficacy of lorazepam as well as a strong patient preference, the general consensus is to add lorazepam to standard antiemetic agents having differing mechanisms of actions. In this manner, dual mechanisms of antiemetic actions may yield even greater clinical response rates.[11]

Patient Selection Considerations

Patients with *no prior chemotherapy* experience are preferred to receive lorazepam, as once the pattern of nausea and vomiting becomes established, or the patient becomes negatively conditioned during a period of ineffective antiemetic therapy, anticipatory N/V becomes extremely difficult to manage.

Certain chemotherapeutic agents are more emetogenic than others. Clearly, drugs such as cisplatin and cyclophosphamide have a high potential for inducing N/V, whereas vincristine and many antimetabolites are far less likely to do so.[8] Dosage is an important consideration also, as N/V induced by *low* doses of cisplatin may be alleviated by numerous standard antiemetics (i.e. phenothiazines, metoclopramide, steroids, etc.), whereas N/V produced by *high* doses of cisplatin responds poorly to almost all antiemetics. Thus, patients receiving the more emetogenic agents in higher doses are most likely to benefit from the addition of lorazepam to a standard antiemetic regimen.

Recommendations/Summary

Based on clinical experience, lorazepam appears to be a safe and effective adjunct to standard antiemetic therapy in the treatment of chemotherapy-induced emesis, and clearly represents an important therapeutic advance in this regard.

The anxiolytic and amnesic effects are highly desirable in most patients, since they enhance patient compliance and completion of emetogenic treatment protocols. In addition, lorazepam may have a specific antiemetic-potentiating effect.

Patients with no prior chemotherapy exposure are preferred, as patients who have previously received chemotherapy may have already been negatively conditioned against the noxious experience. Use of the lowest effective dose (to avoid over-sedation) should be recommended (i.e.) 2 mg IV 30 minutes before chemotherapy, followed by 2mg IV q4h *prn*. As a final consideration, patients receiving lorazepam should not be left unattended due to lorazepam's sedating and amnesic effects; this especially applies to ambulatory patients discharged from the clinic.

REFERENCES

1. Ameer B, Greenblatt DJ. Lorazepam: A review of its clinical pharmacological properties and therapeutic uses. Drugs 1981, 21:161-200.
2. Bishop JF, Olver IN, Wolf MM, et al. A randomized, double-blind, crossover study of a new antiemetic in patients receiving cytotoxic chemotherapy and prochlorperazine. J Clin Onc 1984, 2(6):691-695.
3. Borison HL, McCarthy LE. Neuropharmacology of chemotherapy-induced emesis. Drugs 1983, 25(Suppl 1):8-17.

4. Bowcock SJ, Stockdale AD, Bolton JA, et al. Antiemetic prophylaxis with high dose metoclopramide or lorazepam in vomiting induced by chemotherapy. Br Med J 1984, 288:1879.

5. Friedlander ML, Kearsley JH, Sims K, et al. Lorazepam as an adjunct to antiemetic therapy with haloperidol in patients receiving cytotoxic chemotherapy. Aust NZ J Med 1983, 13:53-56.

6. Gagen M, Gochnour D, Yound D, et al. A randomized trial of metoclopramide and a combination of dexamethasone and lorazepam for prevention of chemotherapy-induced vomiting. J Clin Onc 1984, 2(6):696-701.

7. Kris MG, Gralla RJ, Clark RA, et al. Consecutive dose-finding trials adding lorazepam to the combination of metoclopramide plus dexamethasone. Cancer Treatment Reports 1985, 69(11):1257-1262.

8. Laszlo J. Nausea and vomiting as major complications of cancer chemotherapy. Drugs 1983, 25(Suppl 1):1-7.

9. Laszlo J, Clark RA, Hanson DC, et al. Lorazepam in cancer patients treated with cisplatin: A drug having antiemetic, amnesic and anxiolytic effects. J Clin Onc 1985, 3(6):864-869.

10. Maher J. Intravenous lorazepam to prevent nausea and vomiting associated with cancer chemotherapy. The Lancet 1981, 1:91.

11. Meyer J, Long AM, Natale RB, et al. Phase I, II and III trials of a new antiemetic agent—lorazepam. Proc ASCO (Abstr) 1983, 2:88.

12. Morrow GR, Morrell C. Behavioral treatment for the anticipatory nausea and vomiting induced by cancer chemotherapy. NEJM 1982, 307:1476-80.

13. Semrad NF, Leuchter RS, Townsend DE, et al. A pilot study of lorazepam-induced amnesia with cisplatin-containing chemotherapy. Gyn Onc 1984, 17:277-280.

14. Stoudemire A, Cotanch P, Laszlo J. Recent advances in the pharmacologic and behavioral management of chemotherapy-induced emesis. Arch Int Med 1984, 144:1029-1033.

15. Wilcox PM, Fetting JH, Nettesheim KM, et al. Anticipatory vomiting in women receiving cyclophosphamide, methotrexate, and 5-FU (CMF). Cancer Treatment Reports 1982, 66:1601-1604.

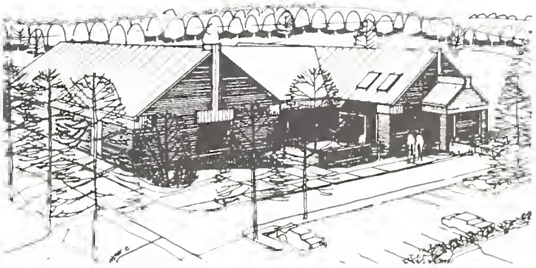
Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:
- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:
- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Medical) for Ophthalmology.
- CO2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

CNA has been helping physicians control risks for years.

Controlling risks is one effective way to help you and the CNA Insurance Companies contain the increasing cost of medical malpractice insurance. Together, through the Connecticut physicians loss control seminars, we are making a difference.

The seminars are designed to help you avoid claims by improving your practice. And we'll demonstrate the proper steps in handling a claim. You'll receive up-to-date information from local physicians, defense attorneys specializing in medical malpractice and CNA claims specialists.

You'll earn a premium credit for completing the workshop. And in some cases, you'll earn CME credits, too. Learn more about controlling risks. Contact the CNA program administrator today.

A. A. W. Physicians Plan, Inc.
225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The CNA Physicians Protection Program is underwritten by Continental Casualty Company, one of the CNA Insurance Companies.

CNA
For All the Commitments You Make®

Pharmaceutical Dissolution of Gallstones

AMA COUNCIL ON SCIENTIFIC AFFAIRS

Biliary tract disease is the fifth leading cause of hospitalization and 500,000 cholecystectomies are performed each year in the United States. An estimated 20 million persons have either symptomatic or asymptomatic gallstone disease. One million patients with gallstones are discovered each year. The female to male ratio of gallstone disease is 3:1, and the incidence in females in some reports is up to 70%. The cost of gallstone disease in the United States is greater than one billion dollars per year. Prior to 1969, therapy for gallstone disease consisted entirely of surgical procedures. Since then the promise of dissolution of gallstones has been attended with great interest. Thus, a report from the Council on Scientific Affairs of the status of this new therapy is considered desirable.

Brief Report

A large cooperative study, the National Co-operative Gallstone Study, involved sixteen medical centers in the randomized treatment of 916 patients with radiolucent gallstones with either 375 or 750 mg/day of chenodeoxycholic acid (CDCA) or a placebo for a two year period.[1] Thirteen percent of those patients who received the larger dose showed complere stone dissolution after this time and 40% showed at least 50% reduction in volume of stones (by a validated roentgenographic method). Other studies disclosed an average of about 20% complete and 50% partial stone dissolution. It was concluded that CDCA has a role in the treatment of selected patients with radiolucent gallstones.

From the National Co-operative trial, it developed that the patients in whom the dissolution was most likely to occur were white women who were not overweight, but had a high serum cholesterol level. The stones most likely to dissolve are floatable, countable, of combined volume less than 1.5 cc and, of course, radiolucent. There were no symptoms serious enough to stop drug therapy during the trial, although a mild diarrhea was common. It should also be noted that when chronic biliary symptoms were present CDCA had no effect upon them.

Two drugs are now being used for *in vivo* dissolution of gallstones in humans. Chenodeoxycholic acid (CDCA) was the first drug used and consequently there has been more experience with this drug. A second drug, urodeoxycholic acid (UDCA), is more potent and seems, at this time, to have less demonstrated side effects. Use of CDCA in what now is established as therapeutic doses has been associated, in addition to the diarrhea, with cholestatic liver cell changes on biopsy and increase in low density lipoprotein and serum 1-alanine aminotransferase levels. The liver enzyme elevations were generally spontaneously reversible. Liver cell changes noted with CDCA are dose related even at low doses. Urodeoxycholic acid is given in far lower dosage and has not yet been associated with the hepatic or serum lipid changes noted with CDCA. Treatment with UDCA appears to work as efficiently as with CDCA, but the cost is greater.

Neither CDCA or UDCA has been demonstrated to work *in vivo* on gallstones other than pure cholesterol stones (with less than 4% calcium). Twenty percent of non-opaque gallstones are not in this category, but are not diagnosable prior to treatment at this time so that a 20% failure rate is immediately apparent. A certain percentage of cholesterol stones will contain greater than 4% calcium, usually as an outer coat, which prevents the medication from reaching the cholesterol. A nonfunctioning gallbladder does not allow the medication to work. Stones greater than 1.5 cc., even though pure cholesterol, are difficult to dissolve.

Patient selection also requires a cholecystogram: a roentgenogram taken while the patient is in a standing position is important because cholesterol stones tend to float whereas non-opaque colored stones will sink. In general, follow-up studies of patients treated with either medicine are performed at six-month and one-year intervals. Longer term studies are needed because recurrence rate has been reported to be between 25% and 50%. Dissolution rate in multiple studies has been reported between 13% and 60%, depending on patient selection, the dose given and the choice of medication. Patient compliance has been a problem because of the need for long-term medication. Follow-up and documentation of dissolution requires a cholecystographic and, more frequently

---

This report is not intended to serve as a standard of medical care: standards of medical care which are determined locally and are constantly subject to change are established on the basis of all the several facts of the individual case.

now, ultrasound study: the latter is more accurate and less risky. Because of the high recurrence rate, long-term, low-dose therapy or intermittent-dose therapy has been proposed.

Criticism of drug dissolution of gallstones includes the possibility of liver toxicity and principally, the high failure rate and recurrence rate after treatment. Although surgical treatment is usually considered to be final, no controlled follow-up studies of silent recurrence of stones, in the intra-hepatic ducts or common bile duct, after operation are available. Neither surgical nor medical method treats the original cause of the gallstones which remains unknown.[3]

Medical dissolution has been used without complication, in the presence of diabetes, birth control medication, clofibrate medication and pregnancy. Dissolution of stones in the common bile duct or the intra-hepatic bile ducts has been used with success following surgical removal of the gallbladder.[4] Success rates are increased by careful selection of patients under 50 years of age and particularly, by establishing the amount of bile saturation with cholesterol by duodenal aspiration in every patient. A combination of dietary change including high fiber diet, no refined sugar, no cholesterol, and medication may reduce recurrences.

Comment

Several questions remain with regard to the use of CDCA and UDCA. Liver toxicity with CDCA resembles cholestasis and appears to be reversible on discontinuing the drug, but a few cases of hepatitis occurred that could not be definitely assigned to the treatment. This complication has not been associated with UDCA. Next, the cost effectiveness of the drug is definitely an advantage for the people in whom the dissolution of the stones was successful. Failure in dissolution, however, adds to the cost because a cholecystectomy must then be performed in the symptomatic patients and sometimes for the asymptomatic. Some investigators now question whether asymptomatic gallstones need to be removed.[2] Recurrence of gallstones may follow either surgical or medical removal, but the difference in incidence is not known. Because ultrasound examination is benign, a study of this question could at least be pursued on surgical patients. Diagnosis of cholesterol stones is not accurate at this point, but surgically removed stones should now undergo stone analysis, so that in case of recurrent cholesterol stones, patients can be appropriately treated with medication. Surgical therapy remains the primary mode of relief in those patients with non-functioning gallbladder and biliary colic, but choice is now available where certain diagnostic and symptomatic criteria can be met.

Conclusions

The use of bile acid derivatives to dissolve cholesterol gallstones may have a role in the management of gallstones but it still remains to be defined. Complete dissolution of cholesterol stones will occur in fewer than 20% of cases, partial dissolution in perhaps 40% to 80%. Symptoms remain unaffected, when present, and cholecystectomy prompted by biliary colic seems to be required at about the same rate in treated as in untreated patients. While roentgenographic evidence of improvement in gallstones may occur, it is not yet clear what that may accomplish in modifying the clinical course of the underlying disease. Furthermore, there are histologic and enzymatic effects on the liver which, though probably temporary, need to be further studied.

REFERENCES

1. The National Cooperative Gallstone Study Group: Chenodiol. (Chenodeoxycolic Acid) for dissolution of gallstones: the National Cooperative Gallstones Study. Ann Int Med 95:257-282, 1981.
2. Editorial: Dissolving Hopes for Gallstone Dissolution? The Lancet, October 24, 1981. Isselbacher KJ, Chenodiol for Gallstones: Dissolution or Disillusion? Ann Int Med, 95:3, September 1981.
3. Bateson MC: Dissolving Gallstones. Brit Med J 28:6308, January 1982.
4. Sonnenshein M, Siegel JH, Rosenthal WS, et al: Recurrent Choledocholithiasis Following Cholecystectomy, Sphincterotomy and Choledochoduodenostomy: Successful Treatment with Chenodeoxycholic Acid. The American Journal of Medicine 69: July 1980.

Trends in Health Personnel

JOHN K. IGLEHART

Growing pressures to reduce federal spending, new health care delivery organizations that utilize hospital services in a more parsimonious fashion, and rising concern within the medical profession that a physician surplus looms ever larger are focusing more attention on the question of how many medical students in the United States should be training. The most recent reflection of this rising level of concern is a policy shift in the thinking of the American Medical Association (AMA), away from its previous position that the marketplace would serve as a self-adjusting mechanism for determining physician supply, toward a closer monitoring of manpower trends. New leadership at the Association of American Medical Colleges (AAMC) also has said for the first time that "it is an accepted fact that we are training too many physicians."

The subject of human resources and their multiple uses within the health sphere has evolved from an enterprise once dominated by solo fee-for-service practitioners and hospital-based nurses to a burgeoning new configuration of group medical practices, alternative delivery schemes, and vertically integrated corporations. For example, the number of group practices has increased by 82.5 percent from 8,483 in 1975 to 15,485 in 1984. The data presented here illustrate how selected health professionals are affected by and are adjusting to this changing environment.

Physician Supply

The Bureau of Health Professions of the Department of Health and Human Services's Health Resources and Services Administration (HRSA) monitors on a continuing basis physician supply and requirements for 1990 and 2000. The bureau's model projects requirements of 541,000 physicians in 1990 and of 618,800 physicians in 2000, a 19 percent increase over the period 1985-2000. In both 1990 and 2000, the supply of physicians is projected by the bureau's basic series of estimates to be greater than requirements (Table 1). The excesses represent about eight and 11 percent of the supply in those respective years.

A different approach to projecting supply and requirements was undertaken by the Graduate Medical Education National Advisory Committee (GMENAC). When the committee, chaired by Alvin R. Tarlov, originally reported its findings in 1980, it projected that there would be 70,000 more physicians by the year 1990 than society would require. Recently revised supply projections for 1990, based upon the GMENAC approach and incorporating the latest data available, produced slightly lower supply estimates—55,000 more physicians than required.

The change in AMA policy was adopted at its 1986 annual meeting by the association's House of Delegates. The House approved the final report of the AMA Task Force on Physician Manpower that recommended "extensive, ongoing analyses of physician manpower issues," including an annual technical report and efforts to better inform medical students, state legislators, and the public about the changing needs for health professionals. The willingness of the AMA to move more aggressively into the legally and politically sensitive realm of influencing the number of practicing physicians is a solid reflection of the intense pressures its leadership is experiencing from individual doctors who, because they are feeling the effects of competition, believe the association must strive to moderate the production of new physicians.

Medical Education

There is no centralized control over medical education. As a consequence, there is no decision-making body which, having determined that there is excess capacity, can direct a reduction in the number of physicians educated, the AAMC noted in a recently published background paper entitled "Medical Education: Institutions, Characteristics and Programs." The association, which has been reluctant even to discuss publicly the notion that medical schools should consider shrinking their capacity, is moving more aggressively in that direction, largely because its new president, Robert G. Petersdorf, believes that it must.

Unlike his predecessor, John A.D. Cooper, who was reluctant to antagonize the AAMC's constituency of medical schools over the question of their class sizes, Petersdorf feels no such constraint. Addressing the association's 1986 annual meeting on October 27, Petersdorf said: "It is an accepted fact that we are training too many physicians, and that far too many of those we train go into the medical, surgical, and support specialties, rather than primary care."

JOHN K. IGLEHART, Editor of *Health Affairs*, Millwood, Virginia.

Reprinted from the Winter 1986 issue of *Health Affairs*, Project HOPE, Millwood, VA.

Table 1

COMPARISON OF SUPPLY AND REQUIREMENTS FOR PHYSICIANS (MDs AND DOs) (IN THOUSANDS)

1981	*1990*		*2000*		*Percent increase 1981-2000*	
Supply	*Supply*	*Requirements*	*Supply*	*Requirements*	*Supply*	*Requirements*
467.0	587.7	541.0	696.6	618.8	49	33

Source: Health Resources and Services Administration, Bureau of Health Professions. Supply forecasts are from the BHPr Supply Model basic series of estimates; requirements are from the BHPr General Requirements Model.

Table 2

REDUCTIONS IN SIZE OF 1986 ENTERING MEDICAL SCHOOL CLASSES (MEDICAL SCHOOLS WITH LARGEST DECREASES)

School	*Reduction in class size*	*School*	*Reduction in class size*
University of Cincinnati	−42	Indiana University	−10
Universidad Centro del Caribe (Puerto Rico)	−40	University of Mississippi	−10
Kansas University	−25	Wright State University	−10
University of Tennessee	−24	Northwestern University	− 7
University of Chicago	−16	University of Wisconsin (Madison)	− 6
Howard University	−12	Hahnemann University	− 5
University of Minnesota (Mpls.)	−11	Louisiana State University (Shreveport)	− 5
University of Colorado	−10		

Source: Association of American Medical Colleges, 1986.

Table 3

APPLICATIONS TO U.S. MEDICAL SCHOOLS OVER TWENTY YEARS

Year	*Applicants*	*Total no. of applications*	*Applications per person*	*Accepted applicants*	*Applicants-acceptance ratio*	*First-year enrollment*
1965-1966	18,703	87,111	4.7	9,012	2.1	8,759
1970-1971	24,987	148,797	6.0	11,500	2.2	11,348
1975-1976	42,303	366,040	8.7	15,365	2.8	15,351
1980-1981*	36,100	330,888	9.2	17,146	2.1	17,204
1981-1982	36,727	339,975	9.3	17,286	2.1	17,320
1982-1983	35,730	334,897	9.4	17,294	2.1	17,230
1983-1984	35,200	319,340	9.1	17,209	2.0	17,175
1984-1985	35,944	331,937	9.2	17,194	2.1	16,992
1985-1986	32,893	307,427	9.3	17,228	1.9	16,929

Source: Association of American Medical Colleges, *Medical School Admission Requirements*, 1986.
*Ponce, Puerto Rico, and South Dakota did not provide first-year enrollment; 1979-1980 figures were used for these schools.

Petersdorf went on to challenge the AMA's longstanding policy of dependence on the market ("I do not believe in the shop-worn dictum that 'the marketplace will control physician manpower' "), called for the phasing out of residency training opportunities for foreign medical graduates, and urged the federal government to award "decapitation grants" to medical schools to help them withstand the loss of tuition or state support as they downsize their enrollment. "Perhaps most important in adjusting to changes in manpower requirements is the need of the accrediting bodies – the LCME (Liaison Committee on Medical Education) with its constituent residency review committees, to introduce and adhere to the highest possible standards in accrediting both medical schools and training programs," Petersdorf said.

Medical education includes the four years of training, following receipt of an undergraduate degree, that lead up to the medical degree. Graduate medical education includes the years beyond in which students develop a medical specialty in residency training programs. Medical education has been a growth industry over the last two decades, and it remains largely untouched by the mounting pressures to reduce the U.S. capacity to train new physicians (Table 2). The growth over this period came largely as a consequence of increases in federal and state government support. The number of U.S. medical schools accredited by the LCME grew from eighty-six in 1960 to 127 in 1986. Forty-four states, the District of Columbia, and Puerto Rico each have at least one medical school.

Currently, fifty-two medical schools are private institutions. However, thirty-five of these schools received appropriated financial assistance in 1984-85 from the

Table 4
WOMEN IN U.S. MEDICAL SCHOOLS

Academic year	Women applicants, no. (%)	Women in entering class, no. (%)	Total women enrolled, no. (%)	Graduates, no. (%)
1965-1966	1,676 (9.0)	731 (8.3)	2,589 (7.9)	524 (6.9)
1970-1971	2,734 (10.9)	1,256 (11.1)	3,894 (9.6)	827 (9.2)
1975-1976	9,575 (22.6)	3,656 (23.8)	11,527 (20.5)	2,200 (16.2)
1980-1981*	10,644 (29.5)	4,970 (28.9)	17,373 (26.5)	3,892 (24.8)
1981-1982	11,673 (31.8)	5,343 (30.8)	18,555 (27.9)	3,991 (25.0)
1982-1983	11,685 (32.7)	5,445 (31.6)	19,627 (29.3)	4,229 (26.7)
1983-1984	11,961 (33.9)	5,659 (32.9)	20,685 (30.7)	4,617 (28.3)
1984-1985	12,476 (34.7)	5,705 (33.6)	21,287 (31.7)	4,898 (30.0)
1985-1986	11,562 (35.1)	5,788 (34.2)	21,624 (32.5)	4,968 (30.7)

Source: Association of American Medical Colleges, *Medical School Admission Requirements,* 1986.
*Ponce, Puerto Rico, and South Dakota did not provide information; 1979-1980 enrollment figures were used for these schools.

governments of states in which they are located. The number of students graduating from medical schools more than doubled over the past twenty years from 7,409 in 1965 to 16,117 in 1986. However, recent medical school applicant and enrollment experience suggests that the United States is moving into a period of stabilization and some reduction of the numbers of students educated. For the academic year 1985-86, there were 32,893 applicants to U.S. medical schools, 3,000 less than the previous year (Table 3). There were a total of 307,427 applications, or 9.3 applications per person. The ratio of applicants to accepted applicants was 1.9 to one. The number of medical school applicants reached a historic peak in 1974 when 42,624 students (2.8 applicants per position) sought admission.

Women and Minorities

The ranks of women in medicine continue to grow, both in their representation among physicians and their increasing numbers in medical training. More than 34 percent of entering medical students in 1985-86 were women. Of the 16,191 expected medical school graduates, 30.7 percent were women (Table 4).

The number of minority students enrolled in medical schools increased 39 percent from 7,596 in 1978-79 to 10,964 in 1985-86 (Table 5). Compared with the general rise in the number of medical students, there has been little change in the proportion of medical students who are members of minority groups, although the AAMC has sought to increase their number. The rising cost of medical education, the difficulties minority students encounter in obtaining scholarships and loans, and reductions in class size all have worked against the AAMC's stated goal.

A new report published by HRSA, "Estimates and Projections of Black and Hispanic Physicians, Dentists, and Pharmacists to 2010," shows sizable increases in the number of black and Hispanic physicians, dentists, and pharmacists. Despite the increases, though, black and Hispanic physicians, dentists, and pharmacists will still be represented well below half their percentages in the U.S. population in the future.

Foreign Medical Graduates

Despite federal policy changes that have sought to reduce the flow of foreign medical graduates (FMGs) into the United States, they remain an important influence in American medical care. Indeed, since 1980 there has been a greater percentage increase of FMGs (21.6 percent) than U.S. medical school graduates (17.1 percent), according to the AMA's 1986 edition of *Physician Characteristics and Distribution in the U.S.*

While amendments to the Immigration and Nationality Act (Public Law 94-484 in 1976 and Public Law 95-93 in 1977) made it more difficult for alien graduates of

Table 5
MINORITY ENROLLMENT OF U.S. CITIZENS IN U.S. MEDICAL SCHOOLS, 1985-1986

	Number	Percent
First-year enrollment*:		
Black (not of Hispanic origin)	854	5.2
American Indian or Alaskan Native	53	0.3
Mexican-American	267	1.6
Puerto Rican	368	2.2
Other Hispanic	234	1.4
Asian or Pacific Islander	1,139	7.0
Total	2,915	17.8†
Graduates:		
Black (not of Hispanic origin)	782	4.8
American Indian or Alaskan Native	44	0.3
Mexican-American	221	1.4
Puerto Rican	292	1.8
Other Hispanic	247	1.5
Asian or Pacific Islander	800	4.9
Total	2,386	14.7
Total enrollment:		
Black (not of Hispanic origin)	3,556	5.3
American Indian or Alaskan Native	230	0.3
Mexican-American	1,045	1.6
Puerto Rican	1,338	2.0
Other Hispanic	961	1.4
Asian or Pacific Islander	3,834	5.8
Total	10,964	16.5†

Source: Anne E. Crowley et al., "Undergraduate Medical Education," *Journal of the American Medical Association* 256 (26 September 1986):1562.
*First-year enrollment data exclude repeaters from count.
†Totals do not add due to rounding.

AYR INSURANCE AGENCY

Sponsored by

The Connecticut State Medical Society

Featuring:
Office Overhead Insurance
With New Lower Rates

-EXAMPLE-
$1,000 per mo. (ages 30-39) - $37.50 semi-annually
(14 day wait and 2 year benefit period)

Also Featuring:
Disability Income Insurance
Hospital, Surgical and Major Medical Insurance
Term Life Insurance

"Growing Bigger by Serving Better"

Alison Ayr
J. Lauren Ayr

David Gould
William Harrington

105 Sanford Street, Hamden, CT 06514
Telephone 288-4302

foreign medical schools to practice here, they did nothing to impede Americans from going abroad to receive medical training. As a consequence, U.S. FMGs now outnumber alien FMGs as participants in graduate medical education programs (Table 6). In 1985, 16.8 percent of all medical residents were FMGs, a reduction of 1.1 percent from the previous year. Seven states (New Jersey, New York, Illinois, Connecticut, Michigan, Maryland, and Florida) and the Commonwealth of Puerto Rico showed a percentage of FMGs higher than the national percentage.

Table 6
FOREIGN MEDICAL GRADUATES (FMGs) IN RESIDENCY POSITIONS

	1979	*1982*	*1984*	*1985*
Total FMGs	12,070	13,123	13,525	12,477
Percentage of total residents	18.7	19.0	18.0	16.8
U.S. citizen FMGs	4,229	6,388	7,386	6,868
U.S. citizen FMGs as a percentage of all FMGs	35.0	48.6	54.6	55.0

Source: Anne E. Crowley, "Foreign Medical Graduates in U.S. Graduate Medical Education," *Journal of the American Medical Association* 256 (26 September 1986):1551-1554.

During the twelve-year period between 1971 and 1983, the total FMG population increased by 80 percent or by nearly 50,000 physicians to a total of 112,005 doctors, according to the AMA's useful new book, *Foreign Medical Graduates*, 1986 edition. By 1983, 82 percent of active FMGs were engaged in patient care activities. Of total FMGs in patient care in 1971, the highest percentages were indicated for the disciplines of internal medicine (15.4 percent), general practice/family practice (12.8 percent), general surgery (11.1 percent), psychiatry (9.1 percent), and pediatrics (6.9 percent), for a cumulative representation of 55.3 percent; these percentages have remained quite stable in the subsequent years.

Medical School Finances

The expansion of every major aspect of medical education in the past twenty-five years is clearly illustrated by the growth in medical school expenditures from $319 million in 1958-59 to $9.8 billion in 1984-85. This reflects a 50 percent increase in the number of schools, a more than doubling of the number of students, a threefold increase in graduate students, and a fivefold increase in full-time faculty (Table 7).

Reporting in the eighty-sixth annual report on medical education in the *Journal of the American Medical Association (JAMA)*, Paul Jolly, Leon Taksel, and David Baime said the mix of medical school revenues appears to be stabilizing, with approximately one-third coming from medical service income, one-fourth from the federal government, one-fifth from state and local governments, and the remainder from other sources. They noted in their analysis that despite the decline in some forms of federal support to medical schools in recent years, federal expenditures to these institutions through 1983-84 did keep pace with inflation, as measured by the Biomedical Research and Development Index. Total federal support to medical schools kept pace with inflation because of continuing real increases in federal research dollars.

Student Scholarships and Loans

Total financial assistance awarded to medical students increased in 1984-85 by $20.7 million, or 4.3 percent, over the previous year. This increase was principally attributable to continued growth in medical student reliance on the Health Education Assistance Loan (HEAL), and Auxiliary Loans to Assist Students or Parental Loans for Undergraduate Students (ALAS/PLUS) programs. In con-

Table 7
COMPARISON OF MEDICAL SCHOOL EXPENDITURES, 1958-1985

	1958-1959	*1979-1980*	*1984-1985*
Number of schools:			
Fully accredited	85	119	125
Provisionally accredited	–	7	2
Number of students:			
Medical students	29,614	64,195	67,090
Graduate students in basic science	4,122	13,201	15,494
Postdoctoral students in basic science	168	3,503	3,943
Residents	15,417	44,646	52,976
Number of full-time faculty	10,350	48,829	58,767
Total expenditures, $ millions*	$319	$5,592	$9,837
General operations	175	3,206	6,229
Sponsored/restricted	144	2,386	3,608
Research	114	1,256	1,939
Federal	74	1,008	1,465
Teaching and training	25	532	595
Federal	21	261	186
Health and community service	5	597	1,074

Source: Paul Jolly, Leon Taksel, and David Baime, "U.S. Medical School Finances," *Journal of the American Medical Association* (26 September 1986).
*Dollar figures are for fully accredited schools only.

Table 8

STUDENT INDEBTEDNESS (PERCENT OF STUDENTS RESPONDING)

	Premedical	*Medical*	*Total*
No debt ($0)	53.5	22.5	17.9
$ 1 to $ 4,999	20.6	2.0	3.1
$ 5,000 to $ 9,999	19.1	5.1	6.2
$10,000 to $14,999	4.8	5.3	5.4
$15,000 to $19,999	0.9	7.8	6.2
$20,000 to $24,999	0.6	12.1	10.2
$25,000 to $29,999	0.3	8.2	9.7
$30,000 to $49,999	0.1	22.5	24.6
$50,000 to $74,999	0.1	10.5	11.8
$75,000 to $99,999	0.0	2.9	3.5
$100,000 or more	0.0	1.3	1.5
Number reporting amount (including $0)	10,516	10,421	10,346
Number reporting debt, but no amount	160	229	277
No response	63	89	116
Mean debt of respondents	$2,611	$24,841	$27,493
Mean debt of indebted respondents*	$5,613	$32,042	$33,499

Source: Association of American Medical Colleges, "1986 Medical Student Graduation Questionnaire."

*Respondents are excluded from the computation of statistics for any category in which they did not indicate a debt level.

Table 9

NUMBER OF ACTIVE DENTISTS, BY SEX, ESTIMATED 1984, AND PROJECTED FOR SELECTED YEARS, 1985-2000*

Year	*Number of active dentists*	*Male dentists*	*Female dentists*	*Percent female of all dentists*
1984	137,950	130,970	6,980	5.1
1985	140,770	132,770	8,070	5.7
1990	150,760	137,130	13,630	9.0
1995	156,800	137,450	19,350	12.3
2000	161,180	135,660	25,520	15.8

Source: Health Resources and Services Administration, Bureau of Health Professions, Division of Associated and Dental Health Professions.

*The basic methodolgy was used for all of these projections. Includes dentists in federal service.

trast, medical student participation in the National Health Service Corps scholarship program continued to fall to negligible levels as a program of student assistance. The program provided $4 million to medical students—less than 1 percent of all the aid received by such students.

Increasingly, medical students are depending on commercial market-rate loans to finance their educations. In 1984-85, loan funds accounted for 75.1 percent of all medical student financial assistance, up from 65.7 percent of such aid in 1980-81. If the service-related scholarships offered by the National Health Service Corps and the Armed Forces (used by 5 percent of all medical students) are excluded from the total of financial aid, loans comprised 85.5 percent of all medical student assistance.

JAMA's annual medical education issue reported that students are incurring substantially higher levels of debt as a consequence of their increased reliance on loans. Data from the LCME indicated that 87 percent of 1985 medical school graduates were in debt. The average burden was $30,256, an increase of 12.5 percent over the previous year. Graduating medical students who responded to the AAMC's 1986 questionnaire (10,739 or 66.6 percent of all graduates) reported a mean indebtedness of $33,499 (Table 8).

Dentists

No health profession has experienced as rapid and steep a decline in its number of applicants as dentistry. In one decade, dental schools have gone from enrolling 37 percent of their applicants to 78 percent. In a speech November 3 to the nation's dental school deans, David N. Sundwall, administrator of the Health Resources and Services Administration, said: "The implications of such a dramatic shift in the applicant pool are profound, not only from the standpoint of competition between dental schools for top students but also in the capacity of the pool to contain an adequate supply of well-qualified individuals representing the various aspects of society."

The number of active dentists is projected to grow to 161,180 by the year 2000, according to the *Fifth Report to the President & Congress on the Status of Health Personnel in the United States* (Table 9), representing a net increase of approximately 23,000 dentists over the 1984 figure. The growth in dentist supply relative to population is expected to continue during the remainder of the 1980s, then stabilize during the 1990s. The ratio of active dentists to population would increase from fifty-eight per 100,000 in 1984 to sixty in 1990, and remain at that level to the end of the century.

Nurses

A variety of occupations participate in what is referred to commonly as nursing care. Among them, however, are two groups that have specific educational and licensure requirements for practice: registered nurses (RNs), who comprise the largest component of the nursing force, and licensed practical or vocational nurses. There are three types of programs preparing graduates for licensure as RNs—diploma programs, associate degree programs, and baccalaureate programs; there were 1,466 state board-approved nursing programs for all types in the United States in 1983.

An important dimension of the nursing educational system is that segment which provides for master's and doctoral degrees. The leadership of American nursing has placed particular emphasis on nurses obtaining advanced degrees as an important way to promote the standing of the entire profession in society. In 1980, of an employed RN work force of 1.3 million, 50.7 percent of nurses had degrees from diploma schools, 23.3 percent had baccalaureate degrees, 20.1 percent had associate degrees, 5.1 percent had master's degrees, and 0.2 percent had doctoral degrees. Reflecting the increasing emphasis placed on advanced degrees between 1970 and 1983 enrollments in master's programs increased fourfold, from 4,765 to 18,112. However, most of the increase in this period came from students attending these programs on a part-time basis.

The health care delivery system is undergoing rapid change, and nurses, perhaps no less than physicians, will be affected. For example, the abundance of physicians is likely to challenge nurses' efforts to function in more expanded roles. On the other hand, as hospitals have sought to constrain their expenses as a consequence of the more tight-fisted payment policies of Medicare and other third-party payers, employment of RNs was relatively stable between 1983-84 while hospital hiring of licensed practical nurses and ancillary nursing personnel declined sharply in 1984, according to a new publication, *Trends in Hospital Personnel 1982-1984,* published by the Department of Health and Human Services. Employment of hospital administrators, social workers, medical record personnel, medical technologists, and pharmacy personnel increased between 1981-84, while the hiring of both dietitians and dietetic technicians declined.

Looking to the future, the Bureau of Health Professions developed a model that sought to project the number of trained nurses that would be available for duty by the year 2000. For a variety of reasons, detailed in the department's new health personnel report to Congress, the bureau projected that by 1989-90 there would be 75,300 graduates of programs preparing individuals to become RNs and for 1999-2000, 66,400 graduates. Based on a variety of assumptions, the bureau estimated that the supply of RNs employed or available for employment by the end of 1990 would be 1.73 million. This would include 1.14 million associate degree and diploma nurses, 0.48 million baccalaureate degree nurses, and 0.12 master's and doctoral degree nurses, or 695 RNs per 100,000 people. In full-time equivalents, the number of RNs in 1990 is projected to be 581 per 100,000 people. By 2000, the total number of nurses is projected to be 2.1 million.

MEDICINE MEN AS SCAPEGOATS

Some Indian tribes in America have an uncomfortable custom, when they are visited by an epidemic, of offering up a medicine man as a propitiatory sacrifice for the expiation of the sins of his tribe which are held accountable for the outbreak. In accordance with this custom, "Padre," a "big medicine man" of the Yuma Indians, who live on a reservation near Yuma, Arizona, was recently offered as a sacrifice on the occasion of an epidemic of small-pox. The "medicine man," divining the Indians' intention, fled to the mountains, but wandered back to the Indian village in a half-starved condition, and pleaded for mercy. He was promptly bound and conveyed by a delegation of Indians to Mexico, where he was tied to a tree and tortured, death ensuing after several hours of suffering. We have among us fanatics whose views as to the etiology of small-pox are even more absurd than those of the untutored Indians of Arizona, and who, if we may judge from the truculence of their invectives against the medical profession, would not be sorry to have the opportunity of treating the doctors as scapegoats in times of epidemic.

—*The British Medical Journal,* July 19, 1902.

Health Care in Transition: Consequences for Young Physicians

AMA COUNCIL ON LONG-RANGE PLANNING AND DEVELOPMENT

Individuals planning for a career in medicine must weigh a number of factors into their decisions. Increasingly, they must understand the nature of the socioeconomic environment of health care, including the extent of competition with other physicians and other health professionals; the degree of autonomy from health care institutions, government, and third-party payers; the impact of demographic or technological changes; and the economics of medical practice. This report analyzes the environment of medicine, emphasizing those elements that will be most important to medical students and resident physicians. It focuses on three stages of a physician's career: obtaining a medical education, beginning to practice medicine, and maintaining a viable practice.

For several years, the American Medical Association (AMA) Council on Long-Range Planning and Development has investigated the forces that are causing significant changes in the practice of medicine.[1] The Council's objective has been to provide information that could help individual physicians in planning for the future. The Council is particularly concerned that young people contemplating or beginning a career in medicine understand the socioeconomic forces that are likely to influence medicine in the future.

This report analyzes the socioeconomic environment of medicine, emphasizing those elements that will be most important to medical students and resident physicians. It focuses on three stages of a physician's professional life: obtaining a professional education, beginning to practice medicine, and maintaining a viable professional career. Specifically, the report identifies current trends and describes how they may develop in the future.

The Economic Reality of Medical Education

Physicians-in-training are asking important questions about their immediate futures. Unfortunately, the answers keep shifting, due to uncertainties about the role that the federal government will play in financing medical education (particularly through Medicare), the reaction of medical schools to a new environment of limited resources, and the responses of teaching hospitals to intensified competition in the private sector and to pressures imposed by government.

The Escalating Costs of Medical Education

The costs of medical education can be viewed from three perspectives: that of the student, who must pay tuition; that of the institution, which employs the resources to provide the education; and that of government, which directly or indirectly helps finance much of the US medical education system. The most immediate concern to physicians-in-training is the costs that they must bear. Average tuition in public medical schools has risen almost eightfold since 1960 (over twice as fast as inflation during this period), from $498 to $3959. Average private school tuition has grown more than 12-fold, from $1050 to $13 105.[2]

More and More students have had to rely on financial aid from their school or the government. Both sources have responded by expanding the funds available to medical students but have shifted their aid from scholarships to loans. In the 1977-1978 academic year, for example, $206.4 million was available to medical students, of which $79.5 million (38%) was in the form of scholarships and $126.9 million (62%) was in loans.[3] By 1983-1984, student aid had grown to $485 million, or almost $7200 per student. However, the composition of that aid had shifted to 74% in loans and only 26% in scholarships.[3] In addition, the loan programs themselves are evolving, from charging subsidized interest rates to using market interest rates. For example, the Health Education Assistance Loan program—which charges a floating interest rate of 3.5 percentage points above the rate for 90-day Treasury bills—made $79 million in loans in 1983-1984, compared with $4.3 million in 1979-1980.[4]

Members of the Council on Long-Range Planning and Development include Richard F. Corlin, MD, Chairman; Frank B. Walker II, MD, Vice Chairman; Valerie Arkoosh, MD; H. Thomas Ballantine, MD; Barbara N. Buchanan, MD; Palma E. Formica, MD; Richard F. Labasky, MD; Barbara Ann Murphy; C. Burns Roehrig, MD; John K. Scott, MD; David M. Shapiro, MD; Robert S. Stone, MD; Douglas E. Hough, PhD, Health Policy Research Group, Consulting Author. Drs. Arkoosh and Shapiro have completed their terms of office since the report was written.

From the Council on Long-Range Planning and Development, American Medical Association, Chicago.

Reprint requests to Department of Long-Range Planning Policy Analysis, Council on Long-Range Planning and Development, American Medical Association, 535 N Dearborn St, Chicago, IL 60610.

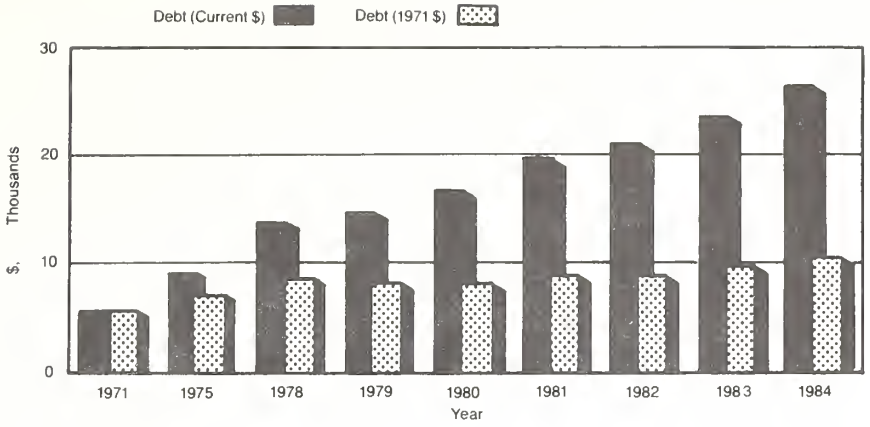


Figure 1
Mean educational debt for graduating medical students, selected years, 1971 through 1984. Source for 1971 and 1975, Association of American Medical Colleges Special Financial Aid Surveys; for 1978 through 1984, Association of American Medical Colleges' *Annual Medical Student Graduation Questionnaire*.[5]

The combination of high (and rising) costs and more expensive loans has precipitated a dramatic escalation in the level of education debt borne by physicians-in-training. Figure 1 illustrates the growth of mean educational debt for graduating medical students since 1971.[5] The average debt load (for those with a debt) has grown steadily by over 12% per year, from $5500 in 1971 to $26 500 in 1984. The debt level has grown even when adjusted for inflation, pausing only during the rampant inflation of the late 1970s.

This rise in indebtedness has, in turn, generated concern that medical students and resident physicians will alter their career plans to accommodate their debt burden.[6,7] However, few studies have shown any relationship between indebtedness and career choices, despite the explosion in debt levels and a wide variety of study methodologies and populations.[7-10] One study[8] did show that the level of Health Education Assistance Loan debt and the proportion of subsidized and non-subsidized interest loans do have an effect on specialty choice. Nevertheless, factors other than debt were found to be much more influential in a young physician's career decisions.

Tuition and fees paid by medical students constitute less than 6% of the more than $9 billion of revenues received each year by US medical schools.[4] Over the past decade, medical schools have experienced a major shift in their sources of revenue. Although federal funds for research have continued to grow, federal subsidies to medical schools for teaching, patient care, and public service have decreased: whereas 44% of US medical school revenues in 1970-1971 came from the federal government, by 1983-1984 only 25% was from that source. In response, medical schools have revamped their financial structures, with patient care services growing 12-fold since 1970.

Teaching hospitals are in danger of becoming more vulnerable economically. They historically have relied on patient revenues to pay the salaries of resident physicians and to finance other graduate medical education costs. In 1983-1984, 81.1% of such costs were financed through the provision of health care services by the hospital.[11] Teaching hospitals typically have higher costs per case than other hospitals,[12] in part because they treat a higher proportion of severely ill patients.[13,14] These higher costs, combined with the national trend toward decreasing numbers of hospital admissions and shorter lengths of stay, put teaching hospitals at a disadvantage in the current environment in which third-party payers are aggressively seeking to contain costs.

The federal government has provided substantial financial support for graduate medical education through Medicare. Medicare payments constitute between one fourth and one third of teaching hospital revenues.[15] With the Reagan Administration and Congress targeting Medicare's contributions to medical education for budget cuts,[16,17] teaching hospitals (and, by implication, resident physicians) will be faced with uncertain financial futures for the next several years.

The Competition for Medical Education Positions

Even with rising tuition, growing debt burdens, and recent problems with institutional funding, competition for admission to medical school and residency positions has remained intense. Although the number of US medical schools increased from 85 in 1960 to 127 in 1983, and first-year enrollment doubled, the number of applicants has kept pace (Fig 2).[3,4] The peak in applicants in the early 1970s and its subsequent decline can be attributed to the maturing of the "baby boom" generation and to the fluctuating economic and professional attractiveness of medicine.

Figure 2 indicates that competition has intensified for first-year graduate medical education positions. This trend has generated concern that graduates of US medical schools may soon be unable to obtain the graduate training that is necessary in most states to qualify for licen-

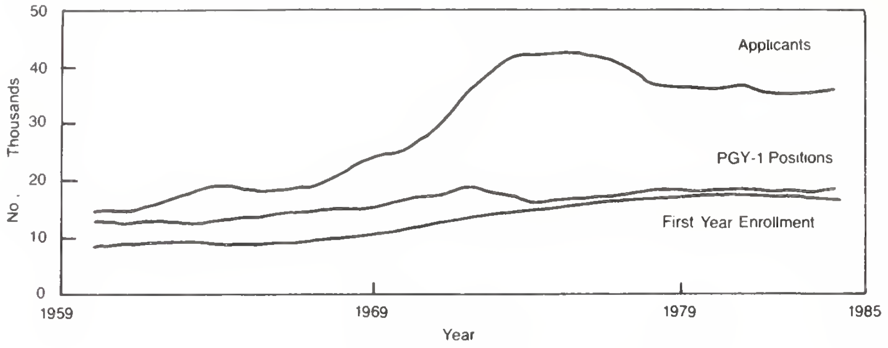


Figure 2
Applicants and enrollment in US medical schools and number of first-year postgraduate (PGY-1) positions, 1960 through 1984.

sure.[18,19] Others[20] have discounted this possibility, arguing that increasing numbers of residency positions are being filled outside of the National Resident Matching Program and that the number of positions offered is strongly related to the number of suitable candidates. In fact, the "match" rate for US medical school graduates has remained almost constant at 93% despite the tightening of the market. However, for foreign medical graduates the match rate has fluctuated widely.[21] If this pattern persists, graduates of US medical schools will still be able to obtain postgraduate year 1 positions, but some foreign medical graduates will experience difficulties.

The Practice Environment of Resident Physicians

The economic status of residents has advanced markedly since the 1930s,[22,23] when interns and residents were not compensated for the health care services that they provided. Table 1 shows that mean salaries of resident physicians have grown eightfold in the last 25 years.[2,11] These gains were attributable to the general rise in demand for health care, the introduction of Medicare and Medicaid, and the ability of house-staff associations to obtain collective bargaining agreements with hospitals.[23] However, since the mid-1970s concerns in the health care sector have shifted from access to cost containment, and competition in health care has arisen. Thus, the gains of the 1960s were not sustained.

The environment facing resident physicians encompasses not only salary but also the amount and kinds of activities performed and the professional atmosphere of the residency program. An AMA survey in 1983 found that the average resident physicians spent 73.7 hours per week in his or her residency program, of which 78% was devoted to the provision of patient care.[23] In addition, the residents surveyed reported that they were "on call" for an average of 8.1 nights per month. The AMA survey also found that residents more frequently cited educational and professional issues (eg, amount of faculty instruction), rather than strictly work-related or economic ones (eg, salary), as major problems. These findings illustrate the dual nature of graduate medical education: residents are students as well as employees, and despite apparent economic problems, they seem willing to accept these hardships to attain their educational goals.

Table 1
MEAN SALARY FOR POSTGRADUATE YEAR 1 RESIDENT PHYSICIANS, SELECTED YEARS 1960 THROUGH 1984*

Academic Year	*Actual Salary, $*	*Salary Adjusted for Inflation, $†*
1960-1961	2465	2779
1965-1966	3797	4018
1970-1971	8115	6978
1975-1976	11 685	7249
1980-1981	16 017	6490
1981-1982	17 301	6351
1982-1983	18 910	6541
1983-1984	19 868	6658
1984-1985	20 808	6689

*Data from Johnson[2] and Association of American Medical Colleges.[11]
†Stated in 1967 dollars. All items adjusted for Consumer Price Index.

Beginning to Practice Medicine

Students and residents have always been anxious about beginning their medical careers. However, the cliche that a new physician needed only to "hand out a shingle" to establish a viable practice has been replaced by some very real concerns: fears of a physician surplus, the prospect of having to compete with professional colleagues and former classmates, and the decline of the traditional solo, fee-for-service medical practice.

The Basic Practice Indicators

The economic status of medical practice can be summarized by a few indicators: annual net income, practice expenses, and the number and kinds of patient visits per week. As shown in Fig 3, physicians' net income has increased 259%, from $41 800 in 1970 to $108 400 in 1984.[24] (Net income is defined as income from medical practice, after practice expenses but before taxes.) Even this substantial increase failed to keep physicians' incomes ahead of inflation. In 1970 prices, net income has fluctuated in a narrow range around $40 000.

This pattern can be explained in two ways. First, the

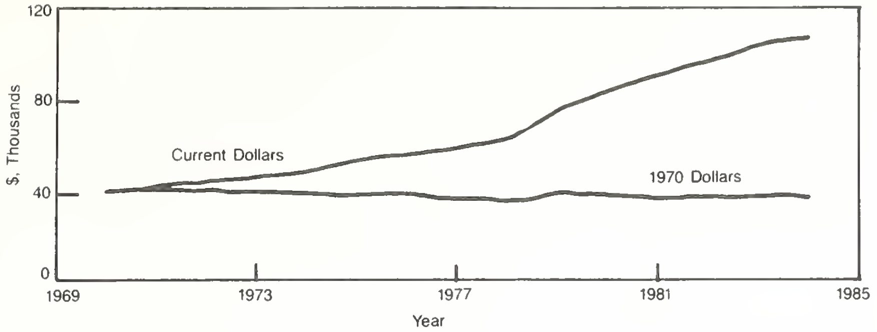


Figure 3
Mean physician income after expenses but before taxes, 1970 through 1984.

rampant inflation of the late 1970s and the recession of the early 1980s dampened the growth in real income for all workers, and physicians were not immune to these forces.[25] Second, economic competition in the physicians' services sector has intensified throughout this period as a result of rapid growth in the supply of physicians, the increasing numbers of nonphysician practitioners, and the new organizational entities that provide health care services.

This pattern has not been replicated uniformly across geographic regions or physician specialties. Physicians in general/family practice and pediatrics have had the smallest increases in net income and, thus, have been most hurt by inflation.[24] Those physicians who were hospital or procedure oriented, such as surgeons, radiologists, and anesthesiologists, made gains relative to inflation. Physicians in New England fared the worst in terms of growth in net income. Only physicians in the Pacific Census Division (Alaska, California, Hawaii, Oregon, and Washington) succeeded in making real economic advances over the past decade.

This overall decline in physicians' real incomes can also be attributed to rapidly increasing professional expenses: from an average of $34 000 in 1974 to $92 600 in 1984.[24] This 10.5% annual growth rate exceeded both the annual rate of inflation over the decade (7.7%) and the yearly increases in physician net incomes (7.6%). As a result, the share of gross practice revenues devoted to expenses increased from 40% in 1974 to 46% in 1984.

Many factors have contributed to the increasing cost of practicing medicine. General inflation has increased the wages that physicians must pay their employees and the prices for necessary supplies and equipment. Advances in technology have expanded the number of procedures and tests that physicians can perform; however, this sophisticated equipment is expensive, both to buy and to use. Finally, the dramatic increase in the probability of being sued for professional malpractice has escalated the cost of professional liability insurance. Physicians surveyed in the AMA's periodic surveys reported that professional liability expenses increased 336% from 1974 to 1984.[24] In many states, the problem has reached crisis proportions, as 50% to 100% annual increases in premiums have become common, and physicians in some specialties (notably, obstetrics/gynecology) report radically altering their practices to avoid potential lawsuits.[26]

The economic environment facing physicians can also be characterized by the nature or professional activities typically performed. Total patient visits per week have been declining since 1975, from a high of 139 in 1975 to 119 in 1984. Office visits have declined even faster, by 26% over the nine-year period. Visits on hospital rounds have fallen at the same rate as visits overall; visits in other settings (eg, emergency rooms and outpatient clinics) have risen substantially.[24]

The Practice Environment of Young Physicians

Many of the standard indicators of economic performance suggest that physicians as a whole have been unable to maintain their economic status or level or practice activity. As for young physicians, a recent AMA analysis[27] found that physicians in their first five years of practice earned a net income of $82 600 in 1983, compared with $112 300 for physicians with six to ten years of experience and $113 700 for physicians practicing more than ten years.

Table 2 compares other practice characteristics of young physicians with those of more experienced physicians.[27] In 1983 younger physicians had fewer total patient visits per week, comprised of substantially fewer office visits, roughly the same number of visits on hospital rounds, and significantly more visits in other settings.

These differences in practice characteristics by age are most likely due to the realities of practice building. The characteristics of physicians with six to ten years of experience (listed in Table 2) more closely match those of older physicians than young physicians. Furthermore, an almost identical percentage of physicians, regardless of age, have hospital admitting privileges. These results strongly suggest that young physicians today are not experiencing more severe competition than their older colleagues.

Trends in Physician Supply

The supply of physicians in the United States has been growing rapidly due to the growth of the medical educa-

Table 2
PRACTICE CHARACTERISTICS OF PATIENT-CARE PHYSICIANS, BY YEARS IN PRACTICE, 1983*

	Years in Practice		
Characteristics	*<6*	*6-10*	*>10*
Average visits/wk Office visits	59.8	70.9	82.9
Hospital rounds	28.8	32.5	26.3
Other visits	21.3	13.7	11.1
Days patients must wait for appointment	5.4	6.9	6.4
% of physicians who have hospital admitting privileges	86.9	87.0	85.6

*Data from American Medical Association.[27]

tion system and the immigration preferences given to foreign physicians before 1976. Serious questions are being raised about the continued ability of the system to utilize more physicians. The Graduate Medical Education National Advisory Committee[28] forecast a surplus of 70 000 physicians in 1990 and 145 000 in 2000. Although the committee's conclusions have been criticized for conceptual and methodological reasons, the study's findings and the ensuing controversy reflect the high degree of concern surrounding the issue.

From 1970 to 1983, the number of active US physicians rose from 314 407 to 482 635, a 54% change.[29] Because the US civilian population grew by only 15% during this period, the number of active US physicians per 100 000 persons increased from 156 in 1970 to 208 in 1983. Some specialties experienced substantial growth, including gastroenterology (196%) and neurology (154%). Others had only moderate increases, such as general surgery (22%). Some specialties grew only slightly, such as general/family practice (1.6%).[29,30]

Perhaps the most significant change in the geographic distribution of physicians since 1970 has been their diffusion into small cities and into nonmetropolitan areas. The Rand Corporation[31] found that by the end of the 1970s, nearly every town with a population of more than 2500 had a physician or ready access to one. The study also found that the percentage of small cities and towns with specialists grew appreciably during the last decade.

Accurate assessments of the future demand for physicians do not exist, because of the difficulty of predicting changes in health care utilization, technology, and patterns of health care provision. However, fairly reliable methods are available to forecast trends in physician supply. Table 3 presents such forecasts by specialty for 1990 and 2000, developed by the US Department of Health and Human Services.[32]

Overall, the number of active physicians in the United States is projected to rise by 26% (to 566 660) between 1981 and 1990 and by 49% (to 667 790) between 1981 and 2000. The specialties forecast to have the *fastest* growth are gastroenterology, diagnostic radiology, and neurology. The three also were among the fastest-growing specialties in the 1970s. The *slowest*-growing specialties for the 1980s and 1990s are projected to be radiology, general surgery, and psychiatry.

Alternative Modes of Practice

For many years, the typical physician was an independent solo practitioner who was paid by patients or third parties based on the amount and kinds of services provided. In essence, the economic structure of a medical practice was similar to that of a small business. Currently, the vast majority of physicians still are self-employed.[29] Nevertheless, a 1984 AMA survey[27] found that young physicians were more likely to be salaried: 27% of physicians with less than six years in practice compared with 10% of those with more experience. Although this trend may simply reflect the process of practice building by new physicians, it does indicate their willingness to consider nontraditional practice arrangements.

The growth of group practice has been undeniably dramatic. Between 1969 and 1980, the number of group practices increased by 36%, and the number of physicians practicing in these organizations more than doubled, from 40 000 to 88 300.[33] Between 1980 and 1984, the number of medical groups rose by 44%. By 1984, approximately 35% of active, nonfederal physicians were affiliated with a group practice.[34]

A related trend has been the development of health maintenance organizations (HMOs) and their increasing acceptance by both patients and physicians. Health maintenance organizations were highly touted in the 1970s as a solution to escalating health care costs. Yet, they did not become popular until recently. By June 1985, a total of 393 HMOs throughout the country had enrolled 18.9 million people, a 25% increase from the previous year.[35] An AMA survey in 1984 found that 27 630 physicians were in group practices that provided at least some services on a prepaid basis.[34]

The number of physicians practicing in settings other than the traditional solo, fee-for-service office is likely to increase for the following reasons: (1) compared with older physicians, young physicians typically have more positive attitudes toward nontraditional practice arrangements; (2) increasing competition and the high costs of establishing a traditional practice provide incentives for

Table 3

PROJECTED NUMBER OF ACTIVE PHYSICIANS, BY SELECTED SPECIALTIES, 1981, 1990, AND 2000*

	No. of Physicians			*% Change*	
Specialty	*1981*	*1990*	*2000*	*1981-1990*	*1981-2000*
All physicians	448 800	566 660	667 790	26.3	48.8
Anesthesiology	18 400	22 550	25 710	22.6	39.7
Cardiovascular disease	10 730	14 850	18 860	38.4	75.8
Gastroenterology	4600	7330	9960	59.6	116.8
General/family practice	65 600	77 910	89 270	18.8	36.1
General surgery	37 990	42 710	45 920	12.4	20.9
Internal medicine	82 020	109 420	132 470	33.4	61.5
Neurology	6510	9590	12 460	47.5	91.5
Obstetrics/gynecology	29 180	37 230	43 880	27.6	50.4
Ophthalmology	13 680	16 590	19 090	21.3	39.5
Orthopedic surgery	15 200	19 090	22 170	25.6	45.9
Pathology	15 050	18 620	21 330	23.7	41.7
Pediatrics	32 590	45 710	57 890	40.3	77.6
Psychiatry	30 250	35 300	38 980	16.7	28.9
Radiology	12 370	12 370	11 880	2.7	−1.4
Radiology (diagnostic)	8820	13 760	18 470	56.1	109.5

*Data from Department of Health and Human Services.[32]

young physicians to become employees; and (3) the number of professional positions available in nontraditional practice arrangements (and opportunities for physicians' direct financial involvement) will parallel their growing public popularity.

Future Directions in Medicine

The changing environment of medicine presents both "threats" and "opportunities" for physicians. Young physicians in particular will be affected by long-term trends in medical technology, demographics, and the structure of the health care sector.

Trends in Medical Technology

Medical students and residents are exposed to the state of the art in medical technology, and they expect to be able to apply it fully when they begin practice. However, the impact of technology on health care costs has concerned both public policymakers and third-party payers. In the 1970s the government saw the regulation of medical technology as a primary mechanism for limiting costs.[36] Recently, public authorities have been using their role as payers for health care services to review medical technologies.[37]

Several factors complicate the control of health care costs through regulation of technology. Studies in the 1970s indicated that the "little-ticket" technologies—such as clinical laboratory tests—contribute more to the total costs of health care than do "big-ticket" technologies.[38,39] Such technologies are largely beyond the cost-control efforts of government. In addition, some technological advances can decrease the costs of treating certain illnesses.[39] Recent studies have shown that the growing use of expensive, but standard, surgical procedures (rather than little-ticket technologies) has been a major cause of health care cost increases since 1970.[40,41] However, placing restrictions on these procedures would necessitate explicit rationing, which the American public to this point has seemed unwilling to accept.

The nature of technological progress makes the future role of technology in medical practice less certain. Some advances may reduce demand for the services of a particular specialty, if the technology can be used by nonphysicians. Others may require more physician involvement, because of the technology's complexity or the need for professional sophistication in its use. Still others may transform the very nature of a specialty. The long-term technological vulnerability of medical practice will require careful planning.

Demographic Trends

Demographic factors can have a dramatic impact on the demand for medical services. Table 4, for example, shows that males have fewer visits to a physician per year than do females.[42] For both sexes, the average number of physician visits rises after adolescence, for females after age 17 years and for males after age 24 years. Additional AMA data[43] indicate that women constitute a high proportion of the patients of general/family practitioner, psychiatrists, and internists. Specialists with substantial numbers of elderly patients include internists, radiologists, surgeons, and general/family practitioners.

The relationships among age, sex, and utilization can

Table 4
PHYSICIAN VISTIS PER PERSON, BY SEX AND AGE GROUP, 1981*

Age Group, y	Physician Vistis per Person per Year Male	Female
All ages	4.0	5.4
<17	4.5	4.3
17-24	2.8	5.2
25-44	3.4	5.8
45-64	4.4	5.7
65-74	5.5	7.0
>74	6.7	6.4

*Data from National Center for Health Statistics.[42]

be used in interpreting the consequences for physicians in the future. Demographic trends projected by the US Bureau of the Census[44] identify three significant population cohorts: the very small Depression cohort (those born 1930 to 1939); the very large "baby boom" (those born 1950 to 1959); and the small "baby bust" cohort (those born 1970 to 1979). One implication is that the demand for obstetric and pediatric care will fluctuate, as the number of newborns increases in the 1980s and decreases in the 1990s. Furthermore, "baby boomers" will strongly influence the demand for medical care, especially as they near 65 years of age. The size of the elderly population will experience rapid growth: the fastest growing age category will be those 85 years and older, which is expected to grow from 2.7 million in 1985 to 4.9 million in 2000.[44] Thus, demand for those physicians who can serve the needs of the elderly should increase substantially. Finally, females will make up a decided majority of the elderly, and a higher proportion of the elderly will live alone. These trends will further define the kinds of medical services demanded in the future.

The Changing Structure of the Health Care Sector

As with the organization of medical practice, the hospital sector and the roles of insurers, payers, and the government are undergoing dramatic changes, which will have profound effects on the medical profession.

Physicians.—Competition in the physician sector will continue to intensify: physicians in different specialties will compete for the same patients, and "turf disputes" will arise. Referral patterns may be disrupted, and the collegiality of the physician community may be jeopardized. Physicians will face competition from large health care organizations. Solo practitioners and small group practices, which lack the volume needed to use specialized personnel and equipment at their optimal levels, may be at a disadvantage.

Questions are likely to emerge about the relationship between business decisions and professional decisions in medicine. When physicians were primarily solo practitioners, these two decisions were highly integrated. As practice arrangements have evolved into more complex forms, the potential exists for business decisions to constrain physicians' professional authority.

New forms of medical practice are raising concerns about the role of profit in medicine. As more and more physicians own and/or practice in for-profit, freestanding clinics and admit patients to investor-owned hospitals, ethical controversies will arise about the compatibility of profit seeking by a physician and the provision of high-quality medical care.

Finally, the patient-physician relationship will continue to be an issue of concern as alternative health care systems proliferate. Since these systems frequently substitute allied health professionals for physicians to reduce costs, physicians are likely to criticize the inevitable erosion in their relationship with patients. The erosion could accelerate if patients begin to view the medical corporation, rather than the physician, as the primary source of medical care.[45]

Hospitals.—Competitive pressures and fundamental institutional changes have combined to redefine the hospital sector. From 1974 to 1983, admissions, surgical operations, and outpatient visits in community hospitals increased substantially.[46] However, these indications of increased utilization were offset by drops in the average occupancy rate (from 75.6% to 73.5%) and in the average length of stay (from 7.8 days to 7.6 days). In 1984, both average length of stay and occupancy rate declined to 7.3 days and 69.0%, respectively.

Four factors best capture the reasons for, and the effects of, the transformations that are occurring: the rise of investor-owned (for-profit) hospitals, the development of multihospital systems, the trend toward "vertical integration," and the implementation of the Medicare prospective pricing system. With the advent of "high-tech" health care and the potential for significant financial returns, private investors have become attracted to the hospital sector. The number of beds in for-profit hospitals grew 90% from 1970 to 1984, compared with only 13% for all other types of hospitals.[46]

A related development has been the advent of multihospital systems. Such systems have been welcomed for their businesslike orientation and concern about cost control. However, some are questioning whether efficiency and high-quality health care are always compatible.[47] Studies of the impact of for-profit hospitals and multihospital systems have produced conflicting results.[48,49] Yet, it is undeniable that these developments are changing the face of health care.

Increased competition among hospitals and the rise of multihospital systems have promoted a trend toward vertical integration. Hospitals are changing the profile of their institutions by buying or developing related health care activities that promise to increase revenues, decrease costs, or increase admissions. By doing so, they are moving away from strict reliance on their medical staffs to generate admissions. Thus, vertical integration has intensified the competition among hospitals and between hospitals and other providers (such as physicians).

The final major factor affecting hospitals has been the

In mild to moderate hypertension
THE FIRST ONCE DAILY CALCIUM CHANNEL BLOCKER

Brief Summary

ISOPTIN® SR
(verapamil HCl/Knoll)
240 mg scored, sustained-release tablets

CONTRAINDICATIONS: 1) Severe left ventricular dysfunction (see WARNINGS), 2) Hypotension (less than 90 mmHg systolic pressure) or cardiogenic shock, 3) Sick sinus syndrome or 2nd or 3rd degree AV block (except in patients with a functioning artificial ventricular pacemaker).

WARNINGS: Heart Failure: ISOPTIN should be avoided in patients with severe left ventricular dysfunction (see DRUG INTERACTIONS). Patients with milder ventricular dysfunction should, if possible, be controlled before verapamil treatment. Hypotension: ISOPTIN (verapamil HCl) may produce occasional symptomatic hypotension. Elevated Liver Enzymes: Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Periodic monitoring of liver function in patients receiving verapamil is therefore prudent. Accessory Bypass Tract (Wolff-Parkinson-White): Patients with paroxysmal and/or chronic atrial flutter or atrial fibrillation and a coexisting accessory AV pathway have developed increased antegrade conduction across the accessory pathway producing a very rapid ventricular response or ventricular fibrillation after receiving intravenous verapamil. While this has not been reported with oral verapamil, it should be considered a potential risk. Treatment is usually D.C.-cardioversion. Atrioventricular Block: The effect of verapamil on AV conduction and the SA node may cause asymptomatic 1st degree AV block and transient bradycardia. Higher degrees of AV block, while infrequent (0.8%), may require a reduction in dosage or, in rare instances, discontinuation of verapamil HCl. Patients with Hypertrophic Cardiomyopathy (IHSS): Although verapamil has been used in the therapy of patients with IHSS, severe cardiovascular decompensation and death have been noted in this patient population.

PRECAUTIONS: Impaired Hepatic or Renal Function: Verapamil is highly metabolized by the liver with about 70% of an administered dose excreted in the urine. In patients with impaired hepatic or renal function verapamil should be administered cautiously and the patients monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacological effects (see OVERDOSAGE).

Drug Interactions: Beta Blockers: Concomitant use of ISOPTIN and oral beta-adrenergic blocking agents may be beneficial in certain patients with chronic stable angina or hypertension, but available information is not sufficient to predict with confidence the effects of concurrent treatment in patients with left ventricular dysfunction or cardiac conduction abnormalities. Digitalis: Clinical use of verapamil in digitalized patients has shown the combination to be well tolerated if digoxin doses are properly adjusted. However, chronic verapamil treatment increases serum digoxin levels by 50 to 75% during the first week of therapy and this can result in digitalis toxicity. Upon discontinuation of ISOPTIN (verapamil HCl), the patient should be reassessed to avoid underdigitalization. Antihypertensive Agents: Verapamil administered concomitantly with oral antihypertensive agents (e.g., vasodilators, angiotensin-converting enzyme inhibitors, diuretics, beta blockers, prazosin) will usually have an additive effect on lowering blood pressure. Patients receiving these combinations should be appropriately monitored. Disopyramide: Disopyramide should not be administered within 48 hours before or 24 hours after verapamil administration. Quinidine: In patients with hypertrophic cardiomyopathy (IHSS), concomitant use of verapamil and quinidine resulted in significant hypotension. There has been a report of increased quinidine levels during verapamil therapy. Nitrates: The pharmacologic profile of verapamil and nitrates as well as clinical experience suggest beneficial interactions. Cimetidine: Two clinical trials have shown a lack of significant verapamil interaction with cimetidine. A third study showed cimetidine reduced verapamil clearance and increased elimination to 1/2. Anesthetic Agents: Verapamil may potentiate the activity of neuromuscular blocking agents and inhalation anesthetics. Carbamazepine: Verapamil may increase carbamazepine concentrations during combined therapy. Rifampin: Therapy with rifampin may markedly reduce oral verapamil bioavailability. Lithium: Verapamil may lower lithium levels in patient on chronic oral lithium therapy. Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no evidence of a carcinogenic potential of verapamil administered to rats for two years. Verapamil was not mutagenic in the Ames test. Studies in female rats did not show impaired fertility. Effects on male fertility have not been determined. Pregnancy (Category C): There are no adequate and well-controlled studies in pregnant women. ISOPTIN crosses the placental barrier and can be detected in umbilical vein blood at delivery. This drug should be used during pregnancy, labor, and delivery, only if clearly needed. Nursing Mothers: ISOPTIN is excreted in human milk, therefore, nursing should be discontinued while verapamil is administered. Pediatric Use: Safety and efficacy of ISOPTIN in children below the age of 18 years have not been established.

ADVERSE REACTIONS: Constipation 8.4%, dizziness 3.5%, nausea 2.7%, hypotension 2.5%, edema 2.1%, headache 1.9%, CHF/pulmonary edema 1.8%, fatigue 1.7%, bradycardia 1.4%, 3° AV block 0.8%, flushing 0.1%, elevated liver enzymes (see WARNINGS). The following reactions, reported in less than 1.0% of patients, occurred under conditions (open trials, marketing experience) where a causal relationship is uncertain; they are mentioned to alert the physician to a possible relationship: angina pectoris, arthralgia and rash, AV block, blurred vision, cerebrovascular accident, chest pain, claudication, confusion, diarrhea, dry mouth, dyspnea, ecchymosis or bruising, equilibrium disorders, exanthema, gastrointestinal distress, gingival hyperplasia, gynecomastia, hair loss, hyperkeratosis, impotence, increased urination, insomnia, macules, muscle cramps, myocardial infarction, palpitations, paresthesia, psychotic symptoms, purpura (vasculitis), shakiness, somnolence, spotty menstruation, sweating, syncope, urticaria. Treatment of Acute Cardiovascular Adverse Reactions: Whenever severe hypotension or complete AV block occur following oral administration of verapamil, the appropriate emergency measures should be applied immediately, e.g., intravenously administered isoproterenol HCl, levarterenol bitartrate, atropine (all in the usual doses), or calcium gluconate (10% solution). If further support is necessary, inotropic agents (dopamine or dobutamine) may be administered. Actual treatment and dosage should depend on the severity and the clinical situation and the judgment and experience of the treating physician.

OVERDOSAGE: Treatment of overdosage should be supportive. Beta-adrenergic stimulation or parenteral administration of calcium solutions may increase calcium ion flux across the slow channel, and have been used effectively in treatment of deliberate overdosage with verapamil. Clinically significant hypotensive reactions or fixed high degree AV block should be treated with vasopressor agents or cardiac pacing, respectively. Asystole should be handled by the usual measures including cardiopulmonary resuscitation.

Knoll Pharmaceuticals
A Unit of BASF K&F Corporation
Whippany, New Jersey 07981

knoll®

BASF Group

©1986, BASF K&F Corporation 2474/11/86 Printed in U.S.A.

NEW YORK FERTILITY RESEARCH FOUNDATION, INC.

For the Investigation of Problems of Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

"SELLING PRACTICES IS OUR BUSINESS'

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping doctors buy and sell more than 100 practices. We guide them through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902

implementation of the Medicare prospective pricing system in October 1983. As intended, this system has encouraged hospitals to economize wherever possible, rather than incurring costs that can be passed on to the government. The impact has been dramatic: the average length of a hospital stay for patients aged 65 years and older declined from 9.7 days in 1983 to 8.9 days in 1984.[50] Although this payment system has the potential to reduce health care expenditures significantly, many are worried that the incentives may induced hospitals to lower the quality of care and discharge patients prematurely. However, only anecdotal evidence exists at this point to substantiate these concerns.

Physician-Hospital Relations. – Physicians and hospitals have long worked together as partners. Nevertheless, the competitive environment is escalating tensions between the two. Primary care physicians feel threatened as hospitals set up outpatient clinics near their offices. They may also be disaffected by hospitals' marketing efforts, which encourage patient loyalty to a hospital perhaps at the expense of loyalty to a physician.

Beyond this sense of competition, physicians are beginning to see themselves as caught in a battle between payers and hospitals on the issues of costs and quality. As patient advocates, physicians cannot skimp on quality; yet, because their financial and professional futures depend on the hospital, they cannot ignore sincere appeals for cost containment.

In spite of these pressures, hospitals and physicians can use their longstanding relationships to compete together. Typical joint ventures include preferred provider organizations, in which hospitals and physicians offer discounts to large insurers or employers in return for favored referrals; HMOs; and jointly owned and operated outpatient clinics. Joint ventures can solidify relations between physicians and hospitals by replacing the informal arrangements prevalent in the past with explicit contractual agreements.

Insurers and Payers. – The voluntary health insurance system developed in the 1930s, as bills for major illnesses began to exceed the patient's immediate ability to pay. Blue Cross and Blue Shield dominated the market until the 1970s. However, by 1982, they had only a 31% market share. Commercial insurance companies claimed 51% of the market, and independent plans (those sponsored by consumers, employers, workers, or health providers) represented the remaining 18%.[51]

The driving forces behind the structural changes in the health insurance sector have been rising health care prices and increased utilization. Shedding their traditionally passive role, many insurers now use their provider contracts and reimbursement formulas to impose control over costs and utilization. Many providers, on the other hand, are resisting the constraints and rules imposed by insurance companies. Physicians, in particular, believe that third parties are beginning to interfere with medical decisions, through preadmission screening and mandatory second opinions.

Government. – Before World War II, the federal government was not active in the health care sector. With the passage of the Hill-Burton Act in 1946 to modernize and expand US hospitals, it began to intervene directly in health care. The enactment of Medicare and Medicaid in 1965 to finance care for the elderly and the indigent guaranteed the federal government's continued participation. By 1983, the federal government's $75.5 billion contribution to these two programs constituted almost one fourth of total expenditures on personal health care in the United States.[52]

Recently, the federal government has promoted a more competitive health care system by shifting more responsibility for health care to state and local governments, deemphasizing centralized health planning, and encouraging HMO enrollment of Medicare beneficiaries. As the largest single payer for health care, it has attempted to become a more "prudent buyer" by exerting more control over how much it pays for services.

Government attempts to modify the economic performance of the health care sector are likely to continue, although its strategies may change again. Government cannot easily withdraw from its commitment to the access and payment for health care services to the poor and the elderly. However, the federal government's current budgetary problems make fulfulling its commitments increasingly difficult.

Implications for Physicians-in-Training

The socioeconomic forces in medicine described in this report are likely to have a number of implications for young physicians:

1. Undergraduate medical education will become more expensive, because of both higher tuition and more expensive loans. Thus, the financial returns for pursuing a medical career will fall. The escalating costs of medical education will discourage minorities and economically disadvantaged students from applying to medical school.

2. Pressure will increase to limit the growth in physician supply, by reducing medical school class sizes, by closing US medical schools, and by reducing the number of graduate medical training positions.

3. Economic pressures (especially falling occupancy rates) will lead some teaching hospitals to eliminate, or at least reduce the size of, residency programs. Graduate medical education may be provided in other than acute-care, inpatient settings.

4. Competition for residency positions will intensify. Foreign medical graduates, both US citizens and foreign nationals, will have increasing difficulty obtaining residency positions. Incomes of resident physicians will plateau or even fall, and working conditions will deteriorate.

5. Young physicians will have more difficulty in getting started than did their predecessors. They will have higher educational debts (both in absolute level and in relation to income); new loans to begin practice will be harder

to obtain; joining existing practices will become more difficult.

6. The changing socioeconomic environment is opening up new career paths and opportunities in terms of specialty, location, and practice mode. For instance, more young physicians will initially become salaried; after they gain experience and accumulate financial resources, they may then enter private practice.

7. Physicians will be forced to assume more risk in every aspect of their practices: in choice of speciality, location, and practice mode; in professional liability; and in any joint ventures. This era will provide few precedents for physicians to follow.

8. Economic pressures are bound to create frictions among physicians. As colleagues become competitors, disputes will inevitably arise over such issues as hospital admitting privileges, the ethics of innovative practice arrangements, and responses to increased professional liability.

9. The status of the medical profession could decline, and the profession could become a trade. Incomes may fall. Physicians are likely to lose their exclusive authority over clinical decisions.

10. There will be an increasing separation between those who make economic decisions and those who make clinical decisions in medicine. Economic pressures may lessen the ability of physicians to be patient advocates. However, these same pressures are likely to make the physician's role as patient advocate even more important in the future.

Despite all these potentially adverse consequences to physicians, innovations in medical education, technology, and the organization of medical practice will continue to improve the ability of physicians to provide high-quality medical care to their patients.

REFERENCES

1. Council on Long-Range Planning and Development: The Environment of Medicine. Chicago, American Medical Association, 1985.
2. Johnson DG: US Medical Students, 1950-2000. Washington, DC, Association of American Medical Colleges, 1983.
3. Medical education in the United States 1978-1979. JAMA 1980, 243:841-887.
4. Medical education in the United States 1984-1985. JAMA 1985, 254:1553-1639.
5. Annual Medical Student Graduation Questionnaire. Washington, DC, Association of American Medical Colleges, 1971-1984.
6. Sandlson JI: A crisis in medical education: The high cost of student financial assistance. N Engl J Med 1983, 308:1286-1289.
7. French FD: The financial indebtedness of medical school graduates. N Engl J Med 1981, 304:563-565.
8. Bazzoli GJ: Does educational indebtedness affect physician specialty choice? J Health Econ 1985, 4:1-19.
9. Board of Trustees: The Effect of Educational Indebtedness on the Career Choices of New Physicians, report E (I-83). Chicago, American Medical Association, 1983.
10. Korcok M: Medical education: Prosperitas interrupta. JAMA 1983, 249:12-16.
11. 1984 COTH Survey of House-staff Stipends, Benefits, and Funding. Washington, DC, Association of American Medical Colleges, 1985.
12. Sloan FA, Feldman RD, Steinwald AB: Effects of teaching on hospital costs. J Health Econ 1983, 2:1-28.
13. Ament RP, Kobrinski EJ, Wood WR: Case mix complexity differences between teaching and non-teaching hospitals. J Med Educ 1981, 56:894-903.
14. Horn SD, Bulkley G, Sharkey PD, et al: Interhospital differences in severity of illness. N Engl J Med 1985, 313:20-24.
15. Schwartz WB, Newhouse JP, Williams AP: Is the teaching hospital an endangered species? N Engl J Med 1985, 313:157-162.
16. Durenberger DF: Who, how and when to pay for physicians' training. Business Health 1985, 2:7-11.
17. Study of the Financing of Graduate Medical Education, Progress and Preview. New York, Arthur Young & Co, 1984.
18. Stimmel B, Graettinger JS: Medical students trained abroad and medical manpower. N Engl J Med 1984, 310:230-235.
19. Haglund K: The new competition for residency slots. New Physicians 1983, 5:12-16, 46.
20. Crowley AE: Residency positions: Are there enough? JAMA 1984, 252:3386-3389.
21. Graettinger JS: Results of the NRMP. Evanston, Ill, National Resident Matching Program, 1985.
22. Harmon RG: Intern and resident organizations in the United States: 1934-1977. Milbank Mem Fund Q 1978, 56:500-530.
23. Hough DE, Bazzoli GJ: The economic environment of resident physicians. JAMA 1985, 253:1758-1762.
24. Reynolds RA, Duann DJ (eds): Socioeconomic Characteristics of Medical Practice 1985. Chicago, American Medical Association, 1985.
25. Statistical Abstract of the US, 1986. Washington, DC, US Bureau of the Census, 1985.
26. Special Task Force on Professional Liability and Insurance: Professional Liability in the '80s. Chicago, American Medical Association, 1985.
27. American Medical Association: Practice environment of young physicians. SMS Rep 1984, 3:8.
28. Graduate Medical Education National Advisory Committee: Summary Report to the Secretary of the Department of Health and Human Services, Dept of Health and Human Services publication (HRA) 81-651. Health Resources Administration, 1980, vol 1.
29. Roback G, Randolph L, Mead D, et al: Physician Characteristics and Distribution in the US, 1984 Edition. Chicago, American Medical Association, 1985.
30. Haug JN, Roback GA, Martin BC: Distribution of Physicians in the United States, 1970. Chicago, American Medical Association, 1971.
31. Newhouse JP, Williams AP, Bennett BW, et al: Where have all the doctors gone? JAMA 1982, 247:2392-2396.
32. Projections of Physician Supply in the US, ODAM report 3-85. Washington, DC, Bureau of Health Professionals, 1985.
33. Henderson SR, Odem RJ, Ginsburg KM: Medical groups in the US, 1980. Chicago, American Medical Association, 1982.
34. Havlicek PL: Medical groups in the US, 1984. Chicago, American Medical Association, 1985.
35. HMO Summary, June 1985. Excelsior, Minn, InterStudy, 1985.
36. Simpson JB: State certificate-of-need programs: The current status. Am J Public Health 1985, 75:1225-1229.
37. Report of the Massachusetts Task Force on Organ Transplantation. Boston, Massachusetts Task Force on Organ Transplantation, October 1984.
38. Moloney TW, Rogers DE: Medical technology: A different view of the contentious debate over costs. N Engl J Med 1979, 301:1413-1419.

39. Scitovsky AA, McCall N: Changes in the Costs of Treatment of Selected Illnesses, 1951-1964-1971. Rockville, Md, National Center for Health Services Research, 1976.

40. Showstack JA, Stone MH, Schroeder SA: The role of changing clinical practices in the rising costs of hospital care. N Engl J Med 1985, 313:1201-1207.

41. Scitovsky AA: Changes in the costs of treatment of selected illnesses, 1971 to 1981. Med Care 1985, 23:1345-1357.

42. Current Estimates from the National Health Interview Survey, United States, 1981, Vital and Health Statistics series 10, No 141. Washington, DC, National Center for Health Statistics, October 1982.

43. Center of Health Services Research and Development: 13th Periodic Survey of Physicians. Chicago, American Medical Association, March 1979.

44. Projections of the Population of the United States, by Age, Sex, and Race: 1983 to 2080, Current Population Reports series P-25, No 925. US Bureau of the Census, May 1984.

45. Starr P: The Social Transformation of American Medicine, New York, Basic Books Inc, 1982.

46. Hospital Statistics, 1985 Edition. Chicago, American Hospital Association, 1985.

47. Relman AS: The new medical-industrial complex. N Eng J Med 1980, 303:963-970.

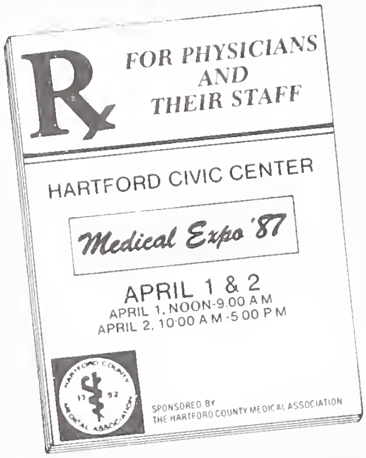
48. Pattision RV, Katz HM: Investor-owned and not-for-profit hospitals: A comparison based on California data. N Engl J Med 1983, 309:347-353.

49. Becker ER, Sloan FA: Hospitals ownership and performance. Econ Inquiry 1985, 23:21-36.

50. Frecko D: Admissions fall but margins are up in '84. Hospitals 1985, 59:70-72.

51. Source Book of Health Insurance Data 1982-1983 (1984 Update). Washington, DC, Health Insurance Association of America, 1984.

52. Gibson RM, Levit KR, Lazenby H, et al: National health expenditures, 1983. Health Care Financing Rev 1984, 6:1-29.



Rx FOR PHYSICIANS AND THEIR STAFF

HARTFORD CIVIC CENTER

Medical Expo '87

APRIL 1 & 2
APRIL 1, NOON-9:00 A M
APRIL 2, 10:00 A M -5:00 P M

SPONSORED BY THE HARTFORD COUNTY MEDICAL ASSOCIATION

A UNIQUE OPPORTUNITY
For you and your staff to meet with experts and learn the latest innovations in clinical and medical business practices,

AT ONE TIME
UNDER ONE ROOF

OVER 200 EXHIBITS

Noted Speakers . . .
Richard L. Reece, M.D.
Information for Physicians in Control
Harvey F. Wachsman, M.D., J.D.
Avoiding Malpractice Suits
Barbara Moynihan, M.S., R.N.
Sexual Assault: The Ultimate Violation
The Crisis of Battering

31 CONTINUOUS SEMINARS
CME CREDITS (pending approval)

Including . . .
Role of Calcium in Hypertension ● Study in Risk Management ● Rehabilitation for Chronic Pain M.D. Tax & Business Planning ● The Effective Medical Office Manager ● HMOs & M.D.s Marketing Your Medical Practice ● Breast Cancer Detection in Asymptomatic Women Coma to Community & Treatment of Head Injuries Travelers Medicare Electronic Claim Advantage

For tickets call ROBERT DONNELL PRODUCTIONS (203) 233-3654

Years of Life Lost from Cardiovascular Disease

CENTERS FOR DISEASE CONTROL

Cardiovascular diseases (CVD) (ICD 390-398, 402, 404-429) remain the leading cause of death in the United States, despite a persistent decline in the mortality rate of about 2% per year since 1968. CVD ranks third in years of potential life lost (YPLL) prior to age 65, a measure that generally highlights death in the early years. This ranking reflects the large number of people who die prematurely from ischemic heart disease (IHD) (ICD 410-414). Other categories of CVD accounting for YPLL are acute rheumatic fever (ICD 390-392), chronic rheumatic heart disease (ICD 393-398), hypertensive disease (ICD 401-405), diseases of pulmonary circulation (ICD 415-417), and other forms of heart disease (ICD 420-429).

Total YPLL, as well as YPLL for men and women, has continued to decline since 1968. In 1983, the most recent year for which complete age-, sex-, race-, and cause-specific mortality data are available, CVD accounted for 1,620,219 YPLL before age 65; this represents 16% of YPLL for all causes of death in 1983.[1] IHD accounted for 1,001,875 YPLL (62% of all CVD). Thus, IHD alone would rank as the fourth highest cause of YPLL behind unintentional injuries, malignant neoplasms, and suicide.

In 1983, white males continued to account for a majority (67%) of YPLL from IHD, followed by white females (18%), black males (9%), black females (5%), and all others (1%). However, the crude rates of YPLL indicate similar risks for IHD mortality among white and black males (691 and 651 YPLL/100,000, respectively). The rate for black females was 1.75 times higher than that for white females (315 vs. 180 YPLL/100,000). Rates for males and females of other races were substantially lower than those for their white counterparts.

Reported by Behavioral Epidemiology and Evaluation Br, Div of Health Education, Center for Health Promotion and Education, Div of Chronic Disease Control, Div of Environmental Health Laboratory Sciences, Center for Environmental Health, CDC.

Editorial Note: Because data on trends for specific risk factors for IHD are not available, risk factor prevalences cannot be correlated with YPLL rates for IHD. However, changes in lifestyle factors have been related to the decline in total mortality from IHD.[2] At present, prevention programs place considerable emphasis on smoking and hypertension. Two other risk factors – elevated cholesterol levels and low levels of physical activity – have received increasing attention in recent years, and are emerging as important targets for further control efforts.

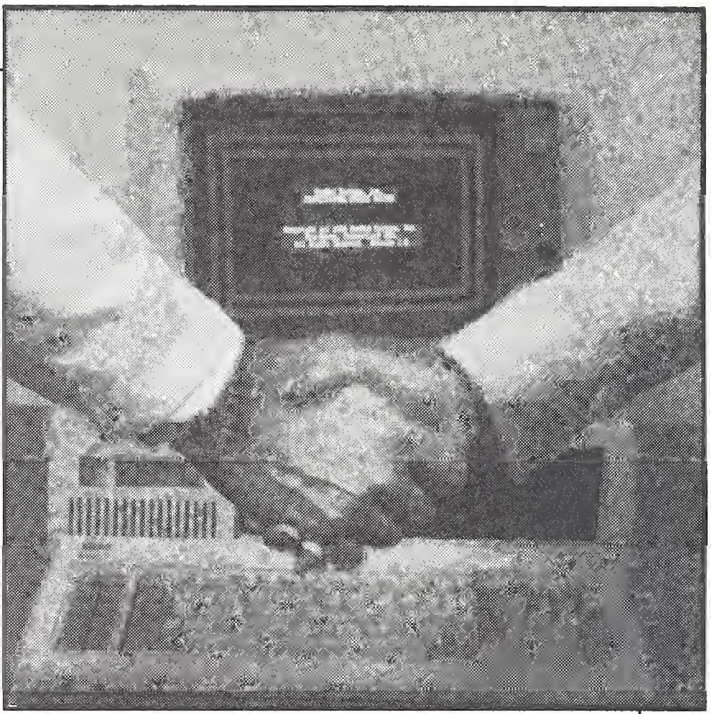
Accurate laboratory measurement of serum cholesterol will be important in monitoring the effect of intervention programs. Substantial variation currently exists in the precision of routine cholesterol measurements. The National Committee on Clinical Laboratory Standards is collaborating with the National Heart, Lung and Blood Institute and with the Centers for Disease Control to conduct the National Cholesterol Standardization Program. This effort is a vital component of the National Cholesterol Education Program,[3] which has as its overall goals the effective identification of, monitoring for, and treatment of persons with cholesterol abnormalities as cardiovascular risk factors.

In many studies, a sedentary lifestyle has been reported as an independent risk factor for IHD. Moreover, habitual physical activity is considered to be associated with a reduced risk of IHD.[4] The effect of vigorous physical activity on IHD appears to be independent of the effects of other risk factors for IHD such as smoking and hypertension. There is also evidence for some important interactive effects between physical activity and other risk factors, especially hypertension and obesity. Animal models appear to confirm these findings and have demonstrated that physical activity may reduce IHD by delaying the development of atherosclerosis.

Current evidence supports policies that promote physical activity for the general population. However, important questions still remain concerning the intensity, duration, and frequency of physical activity required to confer protection. The *1990 Objectives for the Nation* recommend that by 1990, at least 60% of adults ages

---

Morbidity and Mortality Weekly Reports, (Vol. 35, No. 42, 1986 and Vol. 36, No. 1, 1987).



Successful
Relationships
Are
Built Upon
Commitment

ProMed™ Systems has maximized efficiency and cost savings for practices throughout Connecticut. The key ingredient has been our ongoing commitment to provide:

- Functional software designed to increase cash flow, decrease accounts receivable and improve staff efficiency.
- Complete installation, training, service and ongoing support.
- New features and benefits; such as an electronic claims network and 6.5% fixed rate financing.

When choosing a system to meet the needs of your practice...ProMed™ makes the decision simple.

ProMed™
SYSTEMS INCORPORATED

221 Whitney Avenue
New Haven, CT 06511
1-800-922-3385
(203) 773-8255

A subsidiary of:
Blue Cross
Blue Shield
of Connecticut

IBM
Authorized
Value Added
Dealer
Personal
Computers

18-65 years should participate in regular physical activity sufficient to produce moderate to high cardiorespiratory fitness.[6] As of 1985, only 10%-20% of U.S. adults had attained that level of activity.[5]

REFERENCES

1. National Center for Health Statistics: Underlying cause of death. Public Use Tapes, 1979-1983.
2. Goldman L, Cook EF. The decline in ischemic heart disease mortality rates. Ann Intern Med 1984, 101:825-36.
3. National Cholesterol Education Program, National Heart, Lung and Blood Institute, NIH, PHS, DHHS, Bethesda, MD 20892.
4. Siscovick DS, Laporte RE, Newman JM. The disease-specific benefits and risks of physical activity. Public Health Rep 1985, 100:180-9.
5. Powell KE, Spain KG, Christenson GM, Mollenkamp MP. The status of the 1990 objectives for physical fitness and exercise. Public Health Rep 1986, 101:15-21.
6. US Public Health Service. Promoting health/preventing disease. Objectives for the nation. Washington, DC: Department of Health and Human Services, Public Health Service, 1980.

Increasing Rate of *Salmonella Enteritidis* Infections in the Northeastern United States

In the last 10 years, New England and the Middle Atlantic* region have experienced a five-fold increase in the reported isolation rate of *Salmonella enteritidis*. The increase exceeds the regional 1.7-fold increase in the collective isolation rate reported for all other *Salmonella* serotypes. In 1985, *S. enteritidis* replaced *S. typhimurium* as the single most commonly reported serotype in New Jersey, New York, and New Hampshire. The reasons for this increase are not understood. The median age of persons infected with *S. enteritidis* increased from 10 years to 24 years between 1975 and 1985, but the seasonality of the infections has not changed. In 1986, investigations of outbreaks of *S. enteritidis* infections in the northeastern United States implicated a variety of food vehicles, including scrambled eggs in Connecticut, a liquid protein supplement in Pennsylvania, home-made ziti in New Jersey, Italian-style rice balls in New York City, Hollandaise sauce in New York State, roast beef in Massachusetts, and one brand of commercial frozen pasta products in multiple states in the region. No single reservoir that would connect all of these outbreaks and the many sporadically occurring cases has been detected.

On November 1, 1986, epidemiologists from state health departments in the Northeast and the CDC met to review the findings of recent *S. enteritidis* outbreak investigations and to discuss possible approaches to the improved understanding and control of *S. enteritidis* infections in the region. An *S. enteritidis* Working Group was established to facilitate communication and cooperation among public health officials in several states and the CDC in the investigation of *S. enteritidis* outbreaks. Since the serogroup of a *Salmonella* isolate is often known before its serotype and because more than 90% of Group D isolates in the Northeast are *S. enteritidis*, a strategy was developed to intensify the rapid investigation of outbreaks of Group D *Salmonella* in the region. The U.S. Department of Agriculture and the Food and Drug Administration are assisting the *S. enteritidis* Working Group in investigations that suggest a food production or food processing source for the contamination.

Reported by S Schultz, MD, Bur of Preventable Diseases, New York City Dept of Health, D Morse, MD, State Epidemiologist, New York Dept of Health; W Parkin, MD, State Epidemiologist, New Jersey Dept of Health; GF Grady, MD, State Epidemiologist, Bur of Communicable Diseases, Massachusetts Dept of Public Health; EJ Witte, VMD, MPH, State Epidemiologist, Pennsylvania Dept of Health; JL Hadler, MD, MPH, Connecticut Dept of Health Svcs; RL Vogt, MD, State Epidemiologist, Vermont Dept of Health; E Schwartz, MD, State Epidemiologist, New Hampshire Dept of Health and Welfare; KF Gensheimer, MD, State Epidemiologist, Maine Dept of Human Svcs; PR Silverman, PhD, State Epidemiologist, Delaware Dept of Health and Social Svcs; E Israel, MD, State Epidemiologist, Maryland Dept of Health and Mental Hygiene; Div of Field Services, Epidemiology Program Office, Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

Editorial Note: The majority of outbreaks of nontyphoid *Salmonella* infections in the United States come from foods of animal origin, and this is also likely to be the case for *S. enteritidis.*[1] *Salmonella* may be introduced into such foods on the farm, during slaughter or processing, or during final food preparation. A broad increase in regional rates of human infections by a specific *Salmonella* serotype indicates that a regional increase in contamination may have occurred at one or more of these steps in the food chain.

Recognition of the problem of *S. enteritidis* infections in the northeastern United States and the intensive investigation proposed by the *S. enteritidis* Working Group are both made possible by routine serotyping of *Salmonella* isolates in public health laboratories. It is hoped that the regional effort proposed by the *S. enteritidis* Working Group to understand the epidemiology of *S. enteritidis* infections in the Northeast will lead to specific control measures for *S. enteritidis*. Understanding the epidemiology of a specific serotype in a region of high incidence may also lead to a better understanding of the continuing long-term increase in salmonellosis in the United States.

REFERENCES

1. Feldman RA, Riley LW. Epidemiology of *Salmonella* and *Shigella* infections in the United States. In: Takeda Y, Miwatani T, eds. Bacterial Diarrheal Diseases. Tokyo: KTK Scientific Publishers, 1985:103-16.

New Jersey, New York, and Pennsylvania.

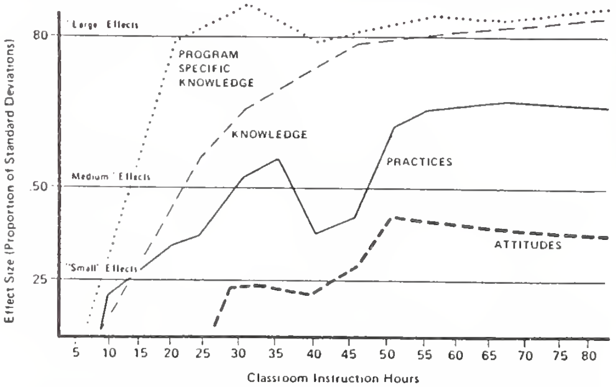
The Effectiveness of School Health Education

The School Health Education Evaluation (SHEE), conducted in collaboration with CDC, from 1982 through 1984, suggests that exposure to health education curricula in schools can result in substantial changes in students' knowledge, attitude, and self-reported practices.

More than 30,000 fourth- through seventh-grade students representing 1,071 classrooms in 20 states were included in an experimental study comparing the effectiveness of four curricula. Details of the statistical analyses are described elsewhere.[2] Overall, children exposed to health education showed increased knowledge, healthier attitudes, and better health skills and practices than those who did not receive health education. Comparisons of the curricula showed each to be most effective in the areas emphasized by developers and believed by teachers to be most important.

One of the four curricula evaluated, the School Health Curriculum Project (SHCP, now called "Growing Healthy"), may delay the onset of smoking among youth. In the fourth through the sixth grades, where the prevalence of smoking is low, the rate of self-reported smoking did not differ between classes that received the curriculum and classes that did not. However, among seventh graders, the data showed a 55% increase in smoking (from 8% to 13%) among students who did not participate in SHCP, compared with a 24% increase (from 6% to 8%) among students who did.[1]

The amount of exposure time to the curricula needed to produce change can be seen in Figure 1. "Effect size" reflects the educational importance (vs. mere statistical significance) of levels reached.[3,4] Large effects on specific program knowledge were achieved in relatively few classroom hours, while more then 50 hours were required to achieve large effects in general knowledge. Medium effects for self-reported practices were first achieved within 30 hours of instruction, but 50 hours were needed to reach a stable level. Only small effects on attitudes were demonstrated, even after 50 hours of instruction.



*Effect sizes were computed as the difference between program and comparison test scores divided by the pooled standard deviation for those classrooms

Figure 1

Relationship of effect size and instruction hours for health knowledge, attitudes, and practices.*

Reported by DB Connell, RR Turner, Abt Associates, Inc, Cambridge, Massachussetts; EF Mason, Morehouse School of Medicine, Atlanta, Georgia; Office of Disease Prevention and Health Promotion, Office of the Assistant Secretary for Health; Office of Program Planning and Evaluation, Office of the Director, Behavioral Epidemiology and Evaluation Br, Div of Health Education, Center for Health Promotion and Education, CDC.

Editorial Note: The SHEE has provided evidence that school health education curricula can effect changes in health-related knowledge, practices, and attitudes, and that such changes increase with amount of instruction. The potential impact of these changes is large. For example, the data from the SHEE suggest that in 1984, if all students in U.S. schools had been exposed to the SHCP, 146,000 students would not have begun to smoke in the seventh grade (Figure 2).

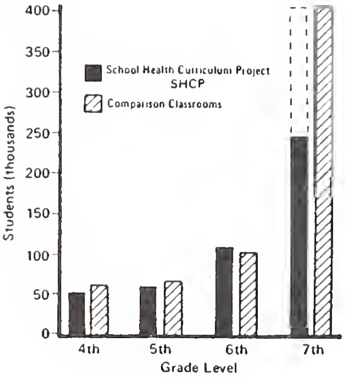


Figure 2

Estimates of number of children who smoked in 1984 and projected decrease in number of children who would have smoked if not exposed to SHCP.

Since nearly one-third (67) of the 1990 *Objectives for the Nation* may be influenced directly in the school setting, use of health education curricula in schools may substantially contribute to the nation's health. The SHEE "demonstrates that school health education is an effective means of helping children improve their health knowledge and develop healthy attitudes" and "can decrease the likelihood that children will adopt behavior that is hazardous to health, such as cigarette smoking".[5] Detailed information regarding the specific and general effects of the various curricula evaluated—as well as the factors affecting their adoption, use, and effectiveness—has been published.[2]

REFERENCES

1. Christenson GM, Gold RS, Katz M, Kreuter MW. Preface. J School Health 1985, 55:295-6.
2. J School Health 1985; 55.
3. Walberg HJ. Improving the productivity of America's schools. Educational Leadership 1984, 41:19-27.
4. Stebbins L, St. Pierre R, Proper E, Anderson R, Cerva T. Education as experimentation: final report of the national follow through evaluation. Abt Associates Inc, 1977.
5. Mason JO, McGinnis JM. The role of school health. J School Health 1985, 55:299.

The President's Page

Light at the End of the Tunnel

It appears that there is a concerted effort on the part of the government to cost shift medical programs. Of course, the recipient of most of the shifting is once again the physician, the provider of medical care, not the beneficiaries.

Mandatory assignment seems to be gaining in popularity. It's an easy way out for the legislators. After all the providers are small in number and the recipients are large in number and they vote. Even to suggest that the medicare allowance is a fair price for physicians' services is ludicrous. It seems that most legislators fail to remember that our allowable charges have been frozen for years, and represent approximately 68% of the usual and customary charge.

It is rather difficult to get across our point of view. Until recently I couldn't really explain why. However, following two news conferences and an in-depth interview by a television station, I think I have discovered part of the problem. The reporters have not done their homework. They have come to listen and to interview without having the foggiest notion of what Medicare is all about, let alone some of the important issues we are addressing. Most appear to be interested in distortions or starting controversy. To have reporters who consider themselves "medical reporters" not knowing how one qualifies for medicare is appalling. I was asked that question on at least two occasions in the past four weeks.

With that background, it was pleasant indeed to read my local Sunday paper, *The Waterbury Republican*, this past week. The headline for the editorial was "Doctors Fair On Medicare." It began, as so many editorials do, with a little slam at physicians about the worst alternatives we had to face. From that point on, the editorial addressed the issues honestly and with some insight into the basic problem facing medicine and the public. I would like to quote from the editorial: "The society and 75% of its membership have offered to accept as full payment Medicare allowances for those elderly in need. That means the doctors will not ask the free-market fee the rest of the population must pay." This does not address the fact that there has been a charge freeze on Medicare payments for the past two years and that the elderly are already paying less than the "free-market' fee.

To quote again, "But this is not for everyone. Sensibly, the Connecticut State Medical Society is attempting to direct its program toward that segment of the elderly for whom paying the going rate would be burdensome...that is roughly one of every two Medicare recipients statewide. Unfortunately, the medical society's intention to give breaks just to those in need is not sitting well with United Seniors in Action. They won't be satisfied until even the better off seniors qualify. We feel it degrading to senior citizens said a spokesmen. It goes against our philosophy of health care for all. The spokesman didn't say what is degrading about paying your own way if you can."

The editorial went on to say that giving financial breaks to those who can pay is wasteful, and that legislating Medicare assignment for everyone meant giving the government control over a very big industry. They pointed out that it could discourage doctors from practicing in specialties that serve the elderly. It could also result in everybody else paying more for health care and could result in an exodus of doctors from Connecticut. The editorial concluded by saying, "Rather than risk losing our medical talent, Connecticut's elderly should recognize that the Connecticut State Medical Society is trying to be fair to everyone."

After the confrontations we have had with totally unreasonable people and distortions printed in other publications, this editorial seems like a light at the end of the tunnel. Of course, every once in a while that light is a freight train coming from the other direction.

Joseph C. Czarsty, M.D.
President

While you take care of patients, who takes care of you?

Connecticut
physicians
rely on us for
comprehensive
insurance and
financial services.

- Professional liability coverage
- Business owners protection
- Personal life, auto, and homeowners insurance
- Financial planning
- Complete brokerage services

The Watson Group -
professionals serving
professionals.

the
WATSON
GROUP

Arthur A. Watson & Company, Inc.
Financial Action Plans, Inc.
Watson Financial Services
Corporation
AAW Physician Plans, Inc.

225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

Reflections on Medicine

Declining or Only Changing?

ROBERT U. MASSEY, M.D.

A retired college professor recently observed to me that today's academicians are more concerned about advancing their own careers than they are about teaching. We had been talking about the recent Masterpiece Theater production of "Goodbye, Mr. Chips." He then went on to say, in defense of his colleagues, that analogous behavior seemed to characterize the other professions as well, most notably lawyers, but also doctors, clergymen, and even stockbrokers; he hadn't meant to single out teachers, but he knew them best. He apologized for generalizing in such an unacademic way; we both knew we were getting into dangerous and mostly indefensible territory, so we changed the subject.

It is risky to apply the standards of one generation to the behavior of another; historians warn their students against measuring the past by the values of the present, unless they have evidence that those values have not changed. Anyway, a besetting sin of old men is to find in the young clear signs of a declining morality; even if we resist the temptation to carp, we may suspect that in this special instance we are right to admonish.

We should be careful to recall that our memories are selective. I remember my good teachers, their names and their faces, and I try to follow their good examples. The bad teachers as well as the mediocre ones have been largely forgotten, not entirely, but their names are gone and their faces blurred. It seems to me that at every stage of my education, from primary school through residency, there were always good teachers; there still are. Yet I believe there may be some truth in what the retired professor was saying.

Competition is keener now in all the professions; with the exception of the clergy, they are all more crowded than they were a generation or two ago, and that means more scrambling for patients, clients, grant support, and recognition from those who count. Unfortunately those who count may not be students, poor patients, needy clients, or even family and friends. Competition is not new either in history or in nature, but it has always to be tempered, as indeed it seems generally to be in nature.

Competition, like passion, may be held in check by regulations, or it may be tempered and disciplined by a lively sense of responsibility, obligation, and duty. For members of those older generations among us whose mothers and fathers, teachers and counselors, grew up in the days before World War I, virtuous behavior, which included an unconditional sense of duty, was more important than a successful scramble to the top, at least so we were taught. Most of us stumbled and fell more than once, but we had bad consciences to show for it, or at least we sensed we were running risks.

Recently a group of nurses and doctors were watching a videotaped production dealing with issues of patients' rights. A fourteen-year-old girl was shown asking her friendly family physician for birth control pills; he responded by suggesting that she return later in the day when they would have time to talk; he wanted to tell her about a way that would be certain, safe, and, more importantly, would do wonders for her self-esteem; he wanted to talk with her about saying *no.* The younger professionals who were watching were disturbed that he had intruded his values so unashamedly; no business of his, they said; if he was unwilling to give her a prescription, he should refer her to someone who would.

That is a difference in generations, which, for the sake of balance, is perhaps a justifiable one. History is full of nasty examples of one crowd imposing their values, or fashions, or tastes upon another. Feelings of guilt have not always been salutary, and so we have tried to get rid of guilt by making virtue no more than a matter of taste, or rather making personal freedom the only obligation.

My academic friend may have had that in mind when he spoke critically of teachers and other professionals for advancing their own careers while neglecting their primary obligations. Even though virtues are private, what we do when no one is watching, to survive and flourish they need public support.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

BOOK REVIEWS

The Foundations of Bioethics

By Engelhardt, Jr., H. Tristam, Oxford University Press, 1986. Hardbound, $27.95.

Bioethical controversies cut across all layers of our pluralistic society affecting a wide divergence of moral sentiments and beliefs. With the growth of the biomedical sciences and health care in the last twenty years we have witnessed the emergence of a pluralistic secular ethics. It is against this backdrop that Dr. H. T. Engelhardt, M.D., Ph.D., has written *The Foundations of Bioethics*, in which he presents the intellectual bases and principles of medical ethics.

By "secular ethics" he means the attempt to find those understandings that can be justified across particular moral communities, traditions, and ideologies, including not only religious communities, but secular communities as well. He argues that the failure of any one absolute moral position leads necessarily to secular pluralism which signals different yet coexisting views of what is "the good" in medical care.

There is a fundamental tension that springs from the difference between respecting the freedom of the persons as patients and securing their best interests. Physicians and nurses are repeatedly confronted with the principles of autonomy and beneficence which lie at the very foundations of medical ethics.

The principle of autonomy is based up on the mortality of mutual respect and self-determination, and prescribes the need for free and informed consent. Beneficence, on the other hand, cannot be understood merely as the "golden rule." It focuses on the morality of concern for the common welfare and social sympathies and seeks the best interest of all. The core difficulty with the principle of beneficence lies in the fact that any specific ranking of goods depends on a particular moral stance and is, therefore, not able to reach all across moral communities. Beneficence does not lend itself always to rational or conclusive arguments to establish a particular moral point of view.

The principle of autonomy and beneficence supports a sharp contrast between obligations to respect freedom of persons and the moral requirement to seek their good. Respecting the freedom of patients may lead to tragic failure on the part of the patient to comply appropriately with medical prescriptions or to avoid disease-producing lifestyles. As a consequence, the price for respecting an individual's freedom or autonomy is often the tragic but morally unavoidable loss of important goods, which is to say that patients have a right to choose freely and even to act capriciously.

Since health care confronts individuals of widely divergent capacities (i.e., the competent, as well as the mentally retarded adult, children, infants, and fetuses), it is critical for Engelhardt to examine what it means to be a "person," the bearer of rights and duties and when they begin and end.

When we call a problem a "medical problem" we are shaping a reality on the basis of this classification. The language of medicine results from a complex interplay of descriptive, evaluative, explanatory, and social labeling interests. Engelhardt provides a fascinating account of the problematic ways in which facts, theories, and values become intertwined in the concepts of "health" and "disease."

For Engelhardt a basic right to the delivery of health care does not exist. Rights to health care constitute claims against others for their services or their goods. Rights to health care are derived from special contractual agreements and depend upon the principle of beneficence rather than autonomy. Some socio-economic conditions may be simply unfortunate; others may be socially unfair and require policies to relieve them. He thus employs both the Rawlsian (quasi-utilitarian) and the Nozickian (libertarian) models of justice to help us understand the extremes of micro- and macroallocations of health care resources in our present two-tier health care system.

The foundations of ethical discussions must encompass and confront the strengths and weaknesses of both religious and non-religious communities. We may support secular moral constraints as long as we do not carry the imposition of our viewpoints beyond our particular community. In Engelhardt's "peaceable community" one has a right to expect reciprocal tolerance of one's own peaceful way of life. In this context the author systematically and carefully attempts to establish the foundations of bioethics limited and constrained only by reason and legitimate authority.

This is an exciting, provocative, and important work, and should be read by health care professionals, theologians, philosophers, as well as others concerned with the many issues arising under the rubric, "bioethics."

Ray Schipke, M.D.
West Hartford, CT

SPECIAL NOTICE

THE CHALLENGE TO PROVIDE GENETIC SERVICES: EQUAL ACCESS IN A TIME OF COST CONTAINMENT

"The Financial Stability of Academic Genetic Centers," "The Impact of Genetic Diseases on Families," and "Payment for Genetics Services" are among the topics to be discussed during a three-day conference to be held in Boston this Spring from May 17 to 19.

Sponsored by the Division of Human Genetics, Department of Pediatrics of the University of Connecticut School of Medicine, and the Genetic Disease Services Branch of the Division of Maternal and Child Health, Bureau of Health Care Delivery and Assistance, Department of Health and Human Services, the conference will be held at the Boston Park Plaza Hotel and Towers.

The program is designed to bring together those concerned with improving the accessibility, availability, and affordability of medical genetics services to the public.

For more information, contact Cecile J. Volp:
Continuing Education Coordinator
University of Connecticut Health Center
Farmington, CT 06032 (203) 674-3340

Alternative Reproductive Technologies: Promise with Problems

JOSEPH M. HEALEY, J.D.

The rise in medical power during the past 50 years has expanded the range of choices in all aspects of medical practice. This expansion has been especially significant in obstetrics and gynecology, particularly with respect to reproductive decision making. Bernard Dickens has pointed out that there are now 23 reproductive options depending upon whose sperm, whose ovum, whose uterus, which means of conception, and which custody alternative will be utilized.[1] As this range of options suggests, it is now possible for a child to have five "parents" simultaneously: a biological father, a biological mother, a gestational mother, a custodial father, and a custodial mother. During the past few years, several well-publicized cases have focussed societal attention on the various legal issues arising out of the use of the alternative reproductive technologies. In this and in subsequent columns, these issues and their implications for public policy will be explored.

An important starting point is the recognition that there is relatively little law directly dealing with the alternative technologies. The most extensive regulation exists in the area of artificial insemination. By 1984, 26 states had enacted statutes. Only a handful of states had cases dealing with artificial insemination. Almost half of the states were without legislative or judicial guidance. The other alternative technologies have even less legal regulation. In an era of over-legalization, this absence of explicit legal guidelines appears to be unusual. In part, the absence reflects the ambivalence which exists in our society about the potential use and abuse of the technologies. When viewed as therapies for infertility, these innovations attract greater support. When viewed as means to achieve eugenic ends, they arouse suspicion and concern. At issue is an interrelated series of personal and social values involving the individual, the child, the family and society. It should not surprise us that there is an absence of consensus about what our public policy should be and how the law should establish guidelines in this area. The absence of law makes it difficult to provide a comprehensive discussion of legal guidelines for these technologies. Nonetheless, the existing law dealing with artificial insemination provides a starting point.

Connecticut is one of the states with a statute regulating artificial insemination.[2] Its provisions address the legal status of a child conceived through artificial insemination, the circumstances underlying the performance of artificial insemination, the rights and duties of the various parties, and a reporting requirement. Under the statute, a child born as the result of artificial insemination with donor sperm is considered to have the status of a naturally conceived legitimate child of the husband and wife who consented to and requested the use of artificial insemination. The procedure is to be performed by a licensed physician who has received the written consent of the wife and husband. The donor of sperm shall not have any right or interest in a child born as a result of artificial insemination. The child shall not inherit from the natural father. There is a requirement that there be filed with the local judge of probate the written request and consent of the wife and husband and a statement by the physician performing artificial insemination that to the best of his knowledge the child was conceived by the use of artificial insemination.

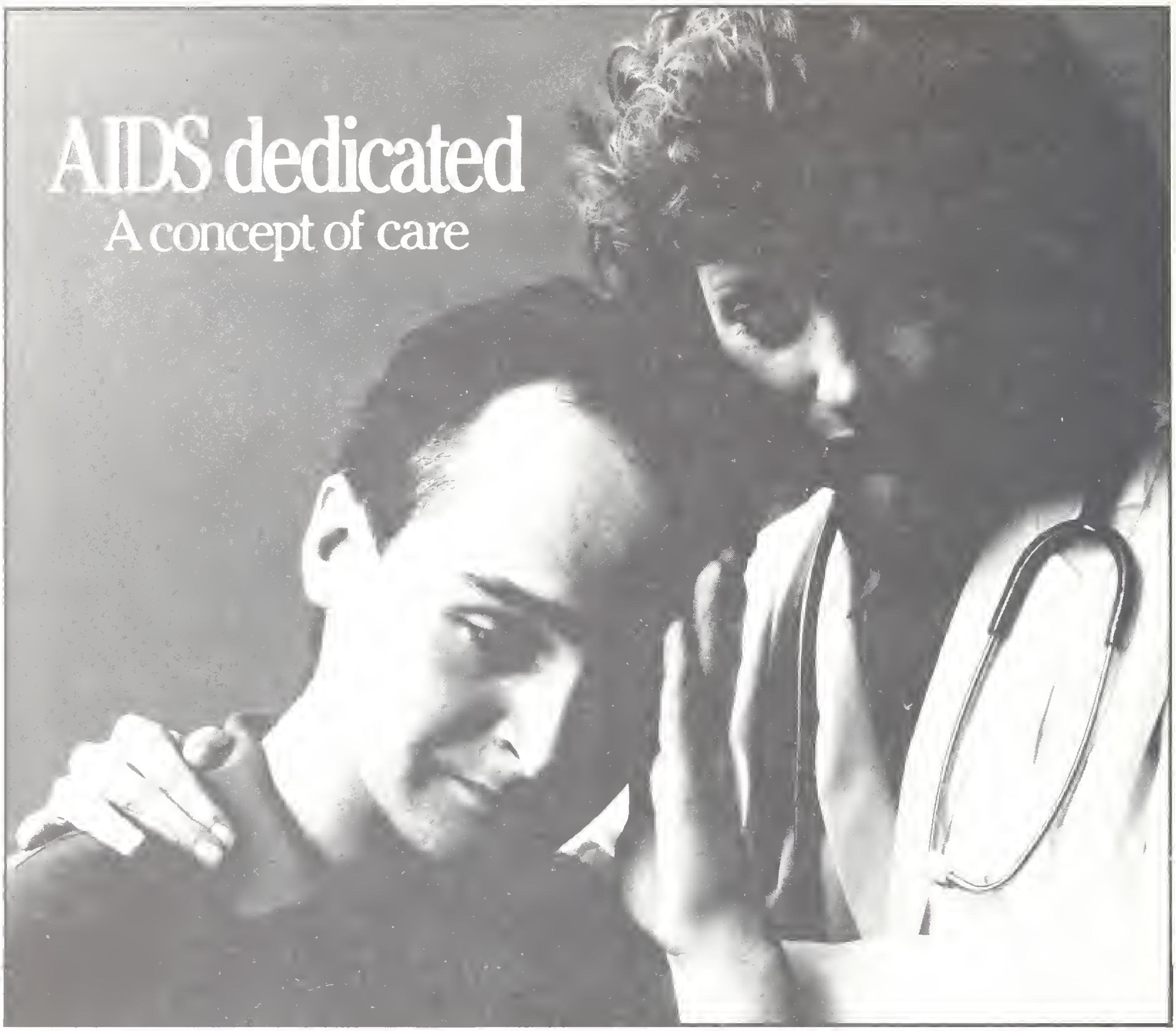
While answering several key questions, the Connecticut statute leaves unanswered several others: Are single women eligible for insemination? What disclosures are required to assure informed consent? What safeguards are required to assure proper screening for genetically transmittable diseases?

Discussion will continue in next month's column.

JOSEPH M. HEALEY, J.D., Associate Professor, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

REFERENCES

1. Dickens BM: "Surrogate Motherhood: Legal and Legislative Issues" Genetics and the Law III (A Milunsky and GJ Annas, eds), Plenum Press New York 1985, 183-214.
2. Conn Gen Stat Sect 45-69F-W.



Photography by Ken Nahoum

AIDS is a complex disease, assaulting the psyche as well as the body. The Spellman Center for the Treatment of Persons With AIDS treats both. A comprehensive medical facility, Spellman is devoted to the care of those suffering from Acquired Immune Deficiency Syndrome.

Respect for individual dignity guides the Spellman program. Staffed by trained personnel dedicated to working with AIDS patients, the Center includes family and friends in the management of the patient's health crisis. Spellman also operates a 24-hour information hotline at 1-800-433-AIDS.

For criteria on admission and referrals, please contact the Medical Director, at **1-212-307-0735**. Spellman is a division of St. Clare's Hospital and Health Center, designated the first AIDS treatment center by New York State.

The Spellman Center
for the Treatment of Persons With AIDS
St. Clare's Hospital and Health Center

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

An AZT Clinical Site

Medical experts,
providers of care

Editorials

Measuring Quality of Care

Quality of care: It's a term one often hears health care officials using in public, usually in the context of "threats to. . ." In private, however, most physicians and hospital administrators will tell you they find the concept of "quality of care" an exceedingly hard one to define with any precision or to measure with any degree of certitude.

"I may not be able to tell you exactly what 'quality of care' is," physicians, in particular, will say, "but I can tell you this: I know when it is present and I know when it is not."

In the past, the payors for health care in our society—government, business, and the insurance industry—generally accepted this state of affairs and deferred to the judgment of medical professionals on all issues involving quality.

Today, however, that is simply no longer true.

Driven by a desire to gain the upper hand, once and for all, on rising health care costs, payors now are working to make quality quantifiable. They concede that measuring medical care quality is not as simple as measuring the quality of a machine part or the handling of a bank loan. Nevertheless, they say, it should be possible to develop some indices which everyone—physicians, payors and patients—can use and understand.

Ironically, this change in attitude has come about primarily because of advances which physician researchers have achieved in this field.

Using sophisticated techniques such as "criteria mapping" and "small area analysis," investigators such as Dartmouth's Dr. John E. Wennberg and others have shown that quality measurement need not be purely an intuitive process.

Yes, there are immensely complex issues involved and yes, we need to proceed with great caution and care, lest we end up with conclusions that are not scientifically sound. But the point is that conclusions can be reached, judgments made, and steps taken that will result in improved standards of patient care.

It is possible to approach the matter of quality assesment in a *scientific* manner, and not just in a *subjective* one.

Further demonstration of just how far we have come can be seen in the announcement last fall by the Joint Commission on the Accreditation of Hospitals (JCAH) that soon it will begin using surgical mortality, complication rates, and other measures of medical outcome as a central tool in its accreditation process.

Previously, JCAH reviews focused essentially on "structure" and "process" as quality indicators. If a hospital had the right equipment and facilities (structure) and if its staff were following the right procedures (process), it was assumed that quality care was being provided.

What the JCAH now believes, however, is that outcome, that is, the end result, should be the most important criterion for measuring quality. Only when problems are indicated at this level should it become necessary to look at structure and process.

Closer to home, the board of trustees of The Connecticut Hospital Association (CHA), whose members include all the hospitals in this state, also has taken a strong interest in this subject.

The CHA board has established a task force on quality assessment composed of hospital executives, physicians, and trustees. The mission of this group is the development of relevant data to assist hospital trustees in the evaluation of quality within their own institutions.

It is understandable if many physicians feel a bit uneasy upon learning about all this activity. Physicians know from experience that medicine, for all its advances and sophistication, still is a very inexact science and that much about the human body is still either poorly understood or not understood at all.

Looked at from a slightly different perspective, however, one can say that it is precisely because medicine is so inexact that efforts to improve the scientific assessment of quality are so needed. It is also why physicians should support such efforts and, indeed, actively participate in them.

It is critical for physicians to take an active part in the process because it is only they who know what questions to ask and who also provide the answers—when we are fortunate enough to find them.

Albert F. May, Jr.

Albert F. May, Jr. was, at the time this article was prepared, Associate Vice President, Public Affairs, The Connecticut Hospital Association. He is now Director of Corporate Communications, Blue Cross and Blue Shield of CT.

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

Cost Containment— A Challenge to Physicians

Until recently the health care system in our country has worked on the premise that no expense was too great to protect the well-being of our patients. Physicians were rewarded when they kept hospital beds full, the laboratories running 24 hours per day, the pharmaceutical industry working extra shifts, and their own offices crammed with patients. We were encouraged to utilize new and expensive technology well before its best uses become apparent. Words like "efficiency" and "cost containment" were unacceptable threats to the "quality of care." However, the reality of mushrooming health care costs, now in excess of $400 billion, is forcing the health care system in our country to become cost conscious.

The challenge of cost containment will be terribly complex. It will be frustrating to all involved and will, by its very nature, be threatening to all participants in our health care system. Indeed, some health care soothsayers view cost containment as an impossible dream. They point out that there are certain inevitabilities over which there is little control. As our population increases, more people will be requiring medical care. Also, as the population ages, as life expectancy increases, and as the quality of life becomes a more important issue, medical expenditures must increase. They also point out that the astronomical cost of new medical technology and the advances produced by medical research, so vital to the continued excellence of our health care system, will be formidable. These facts are undeniable, but what is also undeniable is that the cost of health care is stretching the limits of acceptability. The "payors", mostly big businesses, see the health care system as a boondoggle of excesses and inefficiences; they will no longer allow us the luxury of these excesses. We are being forced, and rightly so, to reevaluate our various areas of expertise. It is imperative that health care become efficient and cost effective.

At present, we physicians continue to be the prime movers in this health care network. It is vital that we take the lead in the evolution of cost containment. We can and we must do this while maintaining the quality of medical care. We must start by reevaluating our various specialties and scrutinize with a microscope everything that we do. We must reevaluate our indications for use of hospitals and our length of hospital stays. All the surgical subspecialties must reevaluate their indications for hospital surgery, outpatient surgery, and office surgery. We must scrutinize, and be open to, some of the proposed ideas for intermediate care facilities like the hospital-motel idea where certain patients may recover safely, or be evaluated safely, at about one-third of the cost of a hospital stay. We must get away from the "shotgun" approach to laboratory work and the technologic evaluation of our patients. We are even going to have to look at which laboratories, which technological facilities, and which hospitals do the best work for the best price. We must decide if each and every bump on the head needs a CAT scan or an NMR test. Does every pregnant woman need an ultrasound? Can we safely get postpartum patients home in 24 hours? Are the medical laboratories, which are springing up in every primary care office, cost effective or cost prohibitive? Psychiatrists, psychologists, and mental health experts are going to have to take a hard look at what responsibilities the health care system has to recalcitrant alcoholics and drug addicts. Should subscribers assume some financial responsibility for their own health? A small co-payment for each office visit might keep benign rhinorrhea out of the offices of our primary care physicians. The list unfortunately can go on and on. These are actually the easy problems to solve. The questions of who should get a heart transplant, and who should be maintained on a respirator, are much more difficult moral and ethical questions. However, if we physicians are able to clean up our own act, I suggest that this will have a ripple effect throughout the entire health care industry and the other involved players will be forced to follow our lead. We must then become involved with these other health care players to assure that their efficiencies do not occur at the expense of the "quality of care." I submit to you that unless we are willing to assume this burden, it will quickly be imposed on us by so-called health care experts. This will then invariably lead to a lowering of the standards of the "quality of care," and we will have surrendered a significant portion of our professional freedom.

Changing our ways will not be easy. I do know, however, that self-directed change will be far more palatable than the imposition of change from medical technocrats. Whether we retain control is *directly* and *completely* in our hands. Only by our own lack of initiative will we lose it. If we cannot do this ourselves, someone will do it for us, and we will have lost the battle and ultimately our independence.

Vincent A. Lynch, M.D., President
New Haven Individual Practice Association

The Medical Courtesy Card Receives Reviews

The Medical Courtesy Card program has received strong editorial support following its formal press announcement on January 27th. In the words of the *Norwich Bulletin*, "the medical society and its members should be commended for rushing to fill a major gap in the health care system for the elderly."

Editorials in *The Hartford Courant* and *Waterbury Republican* were similarly supportive, with the former specifically recommending that "the medical society's voluntary program should be given a few years' time to see how well it works before rushing in with legislation."

Despite these encouraging words, there remain many critics who contend that our program is insufficient. In particular, two concerns were raised in the editorials that we must address. The first questioned the medical society's long-term commitment to the Courtesy Card program. In response to this issue, the Council of the Connecticut State Medical Society recently adopted a resolution declaring its intention to continue supporting the program indefinitely, and further its goal of ensuring access to affordable health care for the needy elderly.

The second major concern was that physician enrollment in the program would not increase beyond current levels, and may actually decline over time. With your assistance, we will dispel that fear. It is imperative for the success of our program that physicians who have not yet joined, do so now. Please contact the Courtesy Card Staff at 1-800-843-4854, to join more then 3200 of your colleagues in accepting the Medical Courtesy Card.

Cameron C. Staples

Director of Special Programs

Medical Manpower

Elsewhere in this issue we have reprinted John K. Iglehart's article entitled, "Trends in Health Personnel," which appeared in *Health Affairs,* Winter 1986. Forty years ago this month, Stanley B. Weld, M.D., Editor-in-Chief of the *Connecticut State Medical Journal,* published an editorial, "Another Medical School," which reminds us that we faced a national physician shortage after the war; even more important to Dr. Weld was the obligation to provide Connecticut's "young boys and girls" an opportunity to study medicine. Last month an exchange medical student from Germany insisted to me that neither America nor Europe should be seriously concerned about physician surplusses as long as there were shortages anywhere in the world. Idealism like this saves the day!

R.U.M.

The editorial below is reprinted from the *Connecticut State Medical Journal,* March 1947:

It is good news to many persons in Connecticut that a subcommittee of trustees of the University of Connecticut takes a less dim view of the need for a second medical college in the State than did the Hartford County Medical Association's committee a short time ago. The financial obstacles to such a venture being what they are, it may be assumed that no action will be taken immediately. But is is heartening to find that the trustees recognize increased facilities will be needed in the "near future," and that Hartford Hospital is also receptive to the idea.

The criticism had been made when the Medical Society opposed the proposal for a second school that the members seemed to consider the problem from the point of view of an adequate supply of doctors alone, rather than from that of the many young men in Connecticut now denied opportunity for a career in medicine through lack of sufficient facilities. The trustees' subcommittee, headed by Dr. Creighton Barker, secretary of the Connecticut State Medical Society, agrees that there is no shortage of doctors in Connecticut. With a host of physicians and surgeons now returned from the wars, that is undoubtedly true.

The fact remains that many young boys and girls of undeniable ability are now, through no fault of their own, kept from a career in this noblest of professions simply because Connecticut boasts but a single medical college, and that beset by too many applicants. Because of this unfortunate circumstance, the study finds, "Connecticut runs slightly below the national average among the States in proportion to its population who enter the study of medicine."

There is a need, the committee continues, for this State to realize its social obligation to contribute to the total number of persons educated in medicine for the benefit of the country as a whole. Surely Connecticut should bear its share of the total expense of manning a profession upon which the entire nation's health depends. Every year Connecticut faces a deficit of about fifty physicians, which it must offset from the national pool. As a State with a reputation for social consciousness, Connecticut should be helping to meet the nation's admitted need for doctors, instead of intensifying it. Another reason why Connecticut needs increased facilities for medical education, as the report observes, is the fact that the Yale Medical School quite properly considers itself a national institution, not one that can devote its efforts to students from Connecticut alone.

The committee estimates that a capital investment of $2,500,000 and an annual cost of $500,000 would be the minimum requirements for a medical school in Hartford. Nothing on this scale can be attempted immediately. But a longer term project is possible and desirable. The trustees, after several months' study of the entire situation, find that the need does exist. The committee is to be congratulated for putting its recommendations on the basis of providing opportunity for Connecticut's youth, and of accepting this State's share of responsibility for the national well-being.

Call to Contributors

Members of the Connecticut State Medical Society reading papers before other organizations are requested to submit their papers to the JOURNAL for consideration by the Board of Editors for publication. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult INFORMATION FOR AUTHORS. This material may be obtained from the *Journal* office. Adherence to the instructions will prevent delays both in acceptance and in publication.

Please send them to:
Robert U. Massey, M.D., *Editor*
Connecticut Medicine
160 St. Ronan Street
New Haven, Connecticut 06511
(203) 865-0587

NEW MEMBERS

Members of the Connecticut State Medical Society join in welcoming these new members into a progressive state medical organization. CSMS is dedicated to promoting the science and art of medicine, the protection of the public health, and the betterment of the medical profession. Each new member is encouraged to join with other CSMS members at both the county and state levels in achieving these goals.

NEW HAVEN COUNTY

Kimberley S. Adams, M.D., Guilford
Richard S. Allen, M.D., Wallingford
Patrick M. Alvino, M.D., Branford
Francisco Becerra, M.D., Wallingford
Kathleen E. Bober-Sorcinelli, M.D., New Haven
Richard N. Biondi, M.D., Southbury
Gary M. Bloomgarden, M.D., New Haven
Kenneth R. Burke, M.D., Essex
Joseph G. Cardinale, M.D., New Haven
Anthony R. Carter, M.D., Waterbury
John K. Conant, Jr., M.D., Waterbury
Lawrence R. Cooperman, M.D., Waterbury
Thomas F. Deering, M.D., New Haven
John M. deFigueiredo, M.D., Branford
Ralph W. DeNatale, M.D., New Haven
J. Michael Elser, M.D., Naugatuck
Diane L. Fountas, M.D., Woodbury
Gary Fratesi, M.D., Cheshire
Edward H. Futterman, M.D., New Haven
Margaret M. Galiani, M.D., Fairfield
Myron Genel, M.D., New Haven
Ramon Gonzalez, M.D., Naugatuck
John J. Greco, M.D., Meriden
Jeffrey A. Gruskay, M.D., Milford
Dorothy K. Gutwein, M.D., Ansonia
Jack Halickman, M.D., Hamden
Robert Hambly, M.D., Hamden
Jason D. Horowitz, M.D., Waterbury
Brian D. Karsif, M.D., Ansonia
David S. Katz, M.D., Milford
Davic C. Knight, M.D., Waterbury
Gordon Kritzer, M.D., New Haven
Kenneth R. Kurz, M.D., Meriden
Robert Lang, M.D., Guilford
Ronald D. Lee, M.D., New Haven
Susan R. Levy, M.D., New Haven
John M. Lewis, M.D., Waterbury
Daniel Lombardo, M.D., New Haven
Frank K. Longo, M.D., Waterbury
Kenkre G. Mahesh, M.D., Meriden
Sue McIntosh, M.D., Guilford
James C. McVeety, M.D., New Haven
Robert M. Milstein, M.D., West Haven
Richard V. Morgera, M.D., Southbury
Esther R. Nash, M.D., New Haven
Pramila M. Nathan, M.D., New Haven
Wayne T. Panullo, M:D., New Haven
Vasantkumar N. Patel, M.D., West Haven
Nicholas V. Perricone, M.D., Meriden
Ronald B. Ponn, M.D., New Haven
Theresa A. Ponn, M.D., New Haven
Christopher C. Randolph, M.D., Cheshire
David I. Riccio, M.D., East Haven
Susan M. Richman, M.D., New Haven
Barbara A. Roach, M.D., Branford
Donald M. Rocklin, M.D., New Haven
Ilene L. Rosenburg, M.D., North Haven
Michael A. Rosenthal, M.D., Branford
Richard L. Rubin, M.D., Guilford
Robert T. Sadock, M.D., Orange
John A. Salerno, M.D., Waterbury
Margaret A. Sanyal, M.D., Branford
John F. Schmidt, M.D., Branford
Mark H. Schoenfeld, M.D., New Haven
Arthur O. Seltzer, M.D., New Haven
Alan J. Sholomskas, M.D., New Haven
Richard R. Slater, M.D., Hamden
Stephen M. Spear, M.D., Southbury
George Spivack, M.D., Meriden
David C. Stair, M.D., Hamden
Grace M. Steere, M.D., Waterbury
Brian C. Swirsky, M.D., New Haven
Ernest A. Topran, M.D., New Haven
Dawn C. Torres, M.D., Guilford
Stephen A. Torrey, M.D., Waterbury
Bruce A. Tupper, M.D., Waterbury
Robert S. White, M.D., New Haven

HARTFORD COUNTY

William J. Aberzik, M.D., Hartford
Sally A. Ardolino, M.D., West Hartford
Michelle C. Benton, M.D., West Hartford
Scheuster E. Christie, M.D., Bloomfield
Peter J. DeBell, M.D., Hartford
Scott L. Dolin, M.D., Hartford
Deborah A. Downes, M.D., Manchester
Steven R. Fera, M.D., Manchester
Richard A. Fichman, M.D., Avon
Theodore D. Fishman, M.D., Hartford
Steven A. Goldenberg, M.D., Bloomfield
Brian J. Grogan, M.D., Hartford
Mary B. King, M.D., Hartford

HARTFORD COUNTY (continued)

Penny Ann Lowenstein, M.D., Glastonbury
Timothy P. McLaughlin, M.D., Bristol
Engracia C. Mendoza, M.D., Bloomfield
Barry N. Messinger, M.D., Manchester
John W. O'Brien, M.D., Hartford
Morris Ostroff, M.D., Hartford
Ranjit S. Pandit, M.D., Bristol
Lawrence M. Pareles, M.D., Hartford
Dipakkumar S. Patel, M.D., Hartford
Joseph F. Piecuch, M.D., Avon
Ellen J. Robinson, M.D., Hartford
Eric L. Rosenburg, M.D., Hartford
Elena S. Seguir, M.D., Manchester
Susanne A. Shrader, M.D., Hartford
Phillip M. Stark, M.D., Hartford
Paul B. West, M.D., West Hartford
Zbigneco A. Woznica, M.D., Hartford
Stephen B. Yuan, M.D., Suffield
Anthony T. Zaldonis, M.D., Avon

FAIRFIELD COUNTY

Ernesto T. Ang, M.D., Danbury
Donald J. Austrain, M.D., Milford
Stephen J. Balsam, M.D., Danbury
Ramon A. Batson, M.D., Norwalk
Nicholas A. Bertini, M.D., Stratford
Gary S. Besser, M.D., Stamford
Douglas L. Bilinski, M.D., Fairfield
John J. Borruso, M.D., Danbury
Richard J. Brauer, M.D., Greenwich
Brian S. Bryzinski, M.D., Stamford
Alsion M. Cass, M.D., Old Greenwich
Joseph Cioffi, M.D., Fairfield
Ronald J. Cirillo, M.D., Stamford
Kenneth A. Cohen, M.D., Danbury
Thea J. Drayer, M.D., Ridgefield
Joel S. Feigenson, M.D., Bridgeport
Ronald B. Frenkel, M.D., Bridgeport
Diane M. Gallo-Van Ess, M.D., Bridgeport
Lambros G. Geotes, M.D., Stamford
Donald G. Gordon, M.D., Sandy Hook
Julia C. Gray, M.D., Stamford
Wieslaw Ignatowicz, M.D., Fairfield
Robert A. Israely, M.D., Norwalk
Edward K. James, M.D., Danbury
Jay H. Klarsfeld, M.D., Danbury
Gene Kopelson, M.D., Bridgeport
Adrienne M. Krausz, M.D., Bridgeport
Joel W. Kunkel, M.D., Trumbull
John A. Larson, M.D., Norwalk
Richard J. Lee, M.D., Danbury
George B. Longstreth, M.D., Southport
Alan A. McLean, M.D., Westport
Joan A. Magner, M.D., Bethel
Delia M. Manjoney, M.D., Bridgeport
Jane Marshall, M.D., Bridgeport
Mary A. Meyers, M.D., Bridgeport
Lynn J. Morris, M.D., Stamford
Eric D. Moskow, M.D., Ridgefield
Karen Muller, M.D., Bridgeport
Santi J. Neuberger, M.D., Stamford
David P. Nocek, M.D., Greenwich
Glenn E. Ostriker, M.D., Stamford
Stuart Press, M.D., Old Greenwich
Ivan P. Rappaport, M.D., Norwalk
Daniel L. Rath, M.D., Bridgeport
Jeffrey R. Sandler, M.D., Ridgefield
Steven L. Schiz, M.D., Greenwich
James C. Spencer, Jr., M.D., Stamford
Robert C. Sporn, M.D., Norwalk
Robert E. Sterling, M.D., Norwalk
Kenneth A. Thomas, M.D., Bridgeport
Charles E. Thompson, M.D., Fairfield
Jonathan A. Waxberg, M.D., Stamford
Michael J. Werdmann, M.D., Monroe
Mark E. Wilchinsky, M.D., Bridgeport

NEW LONDON COUNTY

Taher U. Akhand, M.D., Norwich
Richard C. Albrecht, M.D., New London
William Cambridge, M.D., New London
Leonard A. Copertino, M.D., New London
Bert A. Coppotelli, M.D., Uncasville
Sa-id Esfahanian, M.D., Norwich
Eduardo Hilario, M.D., Norwich
Mahesh N. Kabadi, M.D., Norwich
Brenda M. Koblick, M.D., New London
Richard F. Lain, M.D., North Stonington
Benrard M. Lavergne, M.D., New London
Steven W. Luger, M.D., Old Lyme
Gowd S. Nagaraj, M.D., Norwich
Michael O'Brien, M.D., Stonington
Alnoor Ramji, M.D., Norwich
Dennis E. Slater, M.D., Norwich
Faruk H. Soydan, M.D., New London
Donald S. Weinstein, M.D., New London

LITCHFIELD COUNTY

Sara Ann Case, M.D., Torrington
Roger E. Hirchak, D.O., Harwinton
John P. McKeon, M.D., Torrington
Lanny Moskowitz, M.D., Harwinton

MIDDLESEX COUNTY

Steven Gersten, M.D., Middletown
Michael Good, M.D., Middletown
Rubin Hirsch, M.D., Middletown
Daniel Novak, M.D., Middletown

TOLLAND COUNTY

Gary Bykoff, M.D., Vernon
Carl G. Koplin, M.D., Vernon
Serge P. Poulin, M.D., Coventry
Richard F. Zelinski, M.D., Stafford Springs

WINDHAM COUNTY

Arthur C. DeGraff, Jr., M.D., Hartford
Eric H. Gluck, M.D., Hartford
Leslie B. Lindenberg, M.D., Hartford

From the Executive Director's Office

CSMS Endorses M.D. Health Plan's HMO

A Letter to the Membership from the Chairman of the Council and Vice President, M.D. Health Plan, Inc.

Dear Colleagues:

At the last meeting of the Council of the Connecticut State Medical Society, the Council unanimously voted without reservation to approve the health maintenance organization to be operated by the M.D. Health Plan, and to commend its leadership and staff for the excellence of their work in bringing the plan into existence.

The primary commitment of the Connecticut State Medical Society has always been to improve patient care. Recognizing that this commitment will also always be associated with change, it is vital that we take the responsibility for the nature and direction of that change.

The organizational vision and leadership demonstrated by our House of Delegates, Steering Committee, and Consultants has produced an efficient, socially responsible health care delivery system stressing quality care. Recognizing that the best interests of patients are not served in programs administered by those who have no direct knowledge of clinical medicine or professional standards, our physicians have been placed in these leadership roles. There they are thus able to bring their commitment to quality care and patient service to all financial and management decisions of the HMO.

Your previous foresight and financial sacrifice resulted in CMIC, a well established successful insurance company. Repetition of your foresight and financial sacrifice will result in the HMO operated by the M.D. Health Plan, Inc., becoming a well established successful alternative delivery system.

Finally, the choice is simple; we either work for ourselves or we work for someone else. Please do not postpone your decision. Timing is critical!

Yours sincerely,

Guy W. Van Syckle, M.D.

CALL

ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1987 Annual Meeting of the House of Delegates will be held at the Ramada Inn
Meriden, commencing at 9:30 A.M. on Wednesday, May 6.

Joseph C. Czarsty, M.D., President
Lawrence B. Ahrens, M.D., Speaker of the House
Anne Marie Welch, M.D., Secretary

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society provides:

Resolutions may be introduced by any Active or Life Member or student members or postgraduate physician members of the Society, in compliance with the following provisions:

a. *All resolutions, reports and similar items of business submitted in writing and received at the office of the Executive Director not later than thirty days before the date scheduled for that meeting shall be considered as regular business of the House of Delegates.*

b. *Component county associations or the student members or postgraduate physician members, whose meetings are held later than thirty-five days prior to the date of the House of Delegates shall be allowed five days after the close of such meeting in which to submit resolutions, reports and similar items of business to the Executive Director's office and still have such material considered as regular business. In no event, however, may such resolutions, etc. be considered regular business if they are received later than fifteen days prior to the date of the meeting.*

c. *Reports, recommendations, resolutions or other new business may be presented to the House of Delegates by the Council of The Society at any time and shall be considered as regular business.*

d. *Any business which does not qualify as regular business in accordance with the foregoing provisions may be accepted for consideration by a majority vote of the delegates present and shall be referred at once by the Speaker to a reference committee. When business is introduced under the provision of this paragraph the vote shall be taken without debate, except that the introducer shall be allowed not more than two minutes to explain why it should be considered as regular business.*

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

(If no name is listed, contact the Physician Placement Service for more details.)

EMERGENCY MEDICINE

Director position available in a modern progressive 100-bed general hospital in northwest Connecticut. Board eligible/certified or prepared in emergency medicine with family practice or internal medicine background preferred. Excellent compensation and benefits. Send curriculum vitae and references to Carnes Weeks, M.D., Sharon Hospital, Sharon, CT 06069.

FAMILY PRACTICE

Excellent opportunity to establish practice in one of several rural communities in northwest Connecticut served by modern and progressive 100 bed general hospital. Financial assistance and office space available. Reply in writing with curriculum vitae and references to President, Sharon Hospital, Sharon, CT 06069.

Connecticut Family Practitioner needed for growing practice in beautiful Connecticut location. Excellent salary and life style. Only 1-1/2 hours from NYC. Send CV to Alexander Isgut, M.D., 30 Church Hill Rd., Newtown, CT 06488.

Family/General Practice in urgent care centers providing acute and continuing care. Well-rounded medical background and excellent patient relation skills required. Full and part time positions. Competitive compensation, enjoyable work settings and pleasant ancillary staff. Send C.V. to: PHYSICIANCARE, 60 Church St., Yalesville, CT 06492. (203) 284-9099.

INSTITUTIONAL MEDICINE

Vice President of Medical Affairs. The Connecticut Hospice, Inc., is seeking an individual to provide overall medical supervision. The Vice President serves as medical director for the home care and inpatient hospice program and bereavement team and shares patient care duties with the physician staff. The Connecticut Hospice is licensed in the State of Connecticut as a 44-bed short-term hospital certified by Medicare as a general hospital with a hospital-based home care program, and JCAH accredited. The facility is located near New Haven. Qualifications: Board Certification in a primary care specialty and eight years post residency experience. Familiarity with community based and institutional health care delivery. Demonstrated interpersonal and interdisciplinary skills. Salary negotiable. Please reply by resume to: Rosemary J. Hurzeler, President, The Connecticut Hospice, Inc., 61 Burban Dr., Branford, CT 06405. E.O.E.

Norwich Hospital, a 649 bed State psychiatric treatment facility has an opening for full or part-time physicians. Position responsible for medical diagnosis and treatment of patients. Benefits include a comprehensive medical package, paid leave time, retirement plan and possible housing on grounds. Connecticut license required. Contact: Office of Assistant Superintendent, Clinical; Norwich Hospital, P.O. Box 508, Norwich, CT 06360; (203) 889-7361, Ext. 264. AA/EOE.

SUBSTANCE ABUSE. Central CT, immediate openings for full-time Physicians and Psychiatrists in the Substance Abuse Program. CT Valley Hospital is a JCAH accredited hospital with 96 substance abuse beds for both detoxification and treatment programs in both Alcoholism and Drug Abuse. CT license required. Please send your curriculum vitae to Richard Houser, M.D., Chief of Professional Services, CT Valley Hospital, Box 351, Middletown, CT 06457. AA/EOE.

INTERNAL MEDICINE

For Sale: Practice of Internal Medicine. Excellent location and opportunity. Please call 523-7971.

INTERNAL MEDICINE/GERIATRICS

B/C or B/E internist sought by solo physician in primary care setting on shoreline Connecticut. Fully computerized, modern office with heavy emphasis on quality care of the elderly. Early buy-in possible with all financing arranged for right candidate. Strong interest in geriatrics preferred. Please send CV to CSMS c/o IM/IA.

INTERNAL MEDICINE/REHABILITATION

Well-recognized rehabilitation hospital in Connecticut seeking internist with rehabilitation experience or interest. As the leader of a multidisciplinary team, the physician will be primarily responsible for patients with a variety of neurologic and medical diagnoses. Excellent salary and benefits in pleasant atmosphere with prime opportunity for professional satisfaction. Please send C.V. to: Rose Malfa, M.D., Director, Division of Medical Services, Gaylord Hospital, P.O. Box 400, Wallingford, CT 06492.

OBSTETRICS/GYNECOLOGY

Young Solo OB/GYN, Board Certified seeks BE/BC associate for busy private practice in a beautiful resort community in southern Connecticut. Excellent opportunities for higher education, water recreation, shopping. Easy access to NYC, Boston, Hartford, Cape Cod and skiing. Very stable economy with low employment. Please forward CV to: Stanley P. Solinsky, M.D., 449 Montauk Ave., New London, CT 06320.

PART TIME

Insurance Medicine. The Equitable Life Assurance Society in Milford, CT is looking for a physician with experience in insurance medicine for intermittent, part-time coverage for their Medical Director. Interested individuals should contact L.E. Daniels, M.D., Medical Director at (203) 783-8379.

PSYCHIATRIST

Norwich Hospital. A 649 bed State psychiatric treatment facility has openings for full time Psychiatrists. Benefits include a comprehensive medical package, paid leave time, retirement plan and possible housing on grounds. Connecticut license required. Contact: Office of Assistant Superintendent, Clinical; Norwich Hospital, P.O. Box 508, Norwich, CT 06360; (203) 889-7361, Ext. 264. AA/EOE.

Letters to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgment), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1½ pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent *Journal* article should be received within six weeks of the article's publication.

HOUSE CALLS

To the Editor: I would like to congratulate you on your recent editorial on house calls and home care. I think you are correct - the pendulum is swinging back in the direction of caring for patients in the home, as it should be.

In February, I will be participating in an AMA task force on home care. We are going to first look at where home care fits into the present medical curriculum, then attempt to make some suggestions as to how this is best handled. I would be interested in knowing whether or not UConn has had any experience in this area. I might add that my next venture is a textbook for students on home care.

Lawrence H. Bernstein, M.D.
Storrs, CT

MATERIAL printed in *Connecticut Medicine*, the Journal of the Connecticut State Medical Society, is covered by copyright. Written permission must be obtained before reproducing, in part or in whole, any material published in *Connecticut Medicine*.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

PROSPECTIVE authors preparing manuscripts for submission to *Connecticut Medicine* should consult "Information for Authors." This material may be obtained from the *Journal* office. The manuscript, including references, should be typed double spaced; all material, including figures, should be submitted in duplicate. The transmittal letter should designate one author as correspondent and include his complete address and telephone number.

MANUSCRIPTS should be submitted to the Editor, Robert U. Massey, M.D., *Connecticut Medicine*, 160 St. Ronan St., New Haven, CT. 06511. Manuscripts are received with the explicit understanding that they are not simultaneously under consideration by any other publication.

ALTHOUGH all advertising material is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

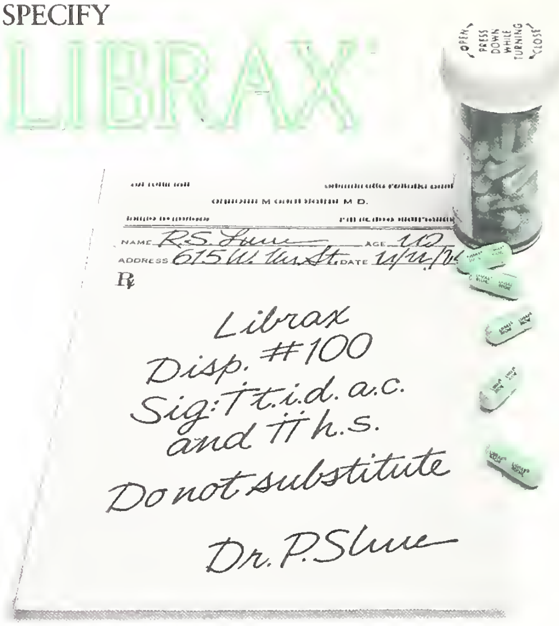
REPRINTS are available at an established schedule of costs. A reprint rate and order form is sent to the author with his page proofs.

SUBSCRIPTION RATE: The subscription price per year for members of the Connecticut State Medical Society is included in the annual membership dues. The subscription price per year for nonmembers is $15.00 (Canada and foreign, $30.00). Single copies $2.50.

ADDRESS editorial and business correspondence to: *Connecticut Medicine*, 160 St. Ronan St., New Haven, CT. 06511. Tel. (203) 865-0587.

CONNECTICUT MEDICINE is the official publication of the Connecticut Medical Society, a voluntary non-profit association organized for scientific and educational purposes, published monthly for members of the Connecticut State Medical Society.

SPECIFY
LIBRAX®



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium bromide

Please consult complete prescribing information, a summary of which follows:

*

Indications: Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows:
"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.
Final classification of the less-than-effective indications requires further investigation.

Contraindications: Glaucoma; prostatic hypertrophy, benign bladder neck obstruction; hypersensitivity to chlordiazepoxide HCl and/or clidinium Br.
Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

> ***Usage in Pregnancy:*** **Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.**

As with all anticholinergics, inhibition of lactation may occur.
Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship not established.
Adverse Reactions: No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated; avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered: isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction; changes in EEG patterns may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

ROCHE
Roche Products Inc.
Manati, Puerto Rico 00701

Connecticut Medicine

Vol. 51, No. 4 *The Journal of the Connecticut State Medical Society* April 1987

160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587

CSMS OFFICERS

Joseph C. Czarsty, M.D. Oakville
President
James P. Orphanos, M.D., Greenwich
President-Elect
Norman A. Zlotsky, M.D., Rockville
Vice-President
Annemarie Welch, M.D., New Britain
Secretary
Robert R. McDonnell, M.D., New Haven
Treasurer
Lawrence B. Ahrens, M.D., Newington
Speaker of the House of Delegates
Mehdi S. Eslami, M.D., Waterbury
Vice-Speaker of the House of Delegates

AMA DELEGATES

Edward A. Kamens, M.D., Fairfield
  Isadore H. Friedberg, M.D., Newington, *Alternate*
Guy W. Van Syckle, M.D., Danbury,
Chairman of the Council
  William A. Whalen, Jr., M.D., Willimantic, *Alternate*
Frank K. Abbot, M.D., Hartford
  Jerome K. Freedman, M.D., New Haven, *Alternate*
Stewart J. Petrie, M.D., Derby
  Joseph S. Sadowski, M.D., Hartford, *Alternate*

COUNCILORS

Robert P. Ragusa, M.D., Bridgeport
Fairfield County
Roger S. Beck, M.D., Wethersfield
Hartford County
Alfred J. Finn, Jr., M.D., Torrington
Litchfield County
Richard T. Sweet, M.D., Middletown
Middlesex County
Geroge A. Bonner, M.D., New Haven
New Haven County
Jerome Bobruff, M.D., New London
New London County
Gerald L. Schwartz, M.D., Rockville
Tolland County
Sherman L. Waldron, M.D., Thompson
Windham County

ASSOCIATE COUNCILORS

Turpin Rose, M.D., Danbury
Fairfield County
Howard J. Wetstone, M.D., Hartford
Hartford County
John J. O'Brien, M.D., Hartford
Hartford County
W. Peter Reyelt, Jr., M.D., Sharon
Litchfield County
Kenneth Robbins, M.D., Middletown
Middlesex County
Theodore Zanker, M.D., New Haven
New Haven County
Marvin Fox, M.D., Milford
New Haven County
Sultan Ahamed, M.D., Norwich
New London County
Arturo D.P. Villa, M.D., Somers
Tolland County
Kenneth R. Dardick, M.D., Storrs
Windham County

COUNCILOR AT LARGE

W. Raymond James, M.D., Essex

Editor	Robert U. Massey, M.D.
Literary Editor	Sherwin B. Nuland, M.D.
Editor Emeritus	J. Alfred Fabro, M.D.
Assistant to the Editor	Vivian C. Feriola
Staff Assistant	Valerie A. Redman

Editorial Board

Hematology and Oncology	James E. Brown, M.D.
Cardiology and Internal Medicine	Martin Duke, M.D.
Psychiatry	Stephen Fleck, M.D.
Dermatology	Robert D. Greenberg, M.D.
Nephrology and Internal Medicine	William A. Handelman, M.D.
Infectious Diseases and Internal Medicine	David P. Johnson, M.D.
General Surgery	Kirk K. Kazarian, M.D.
Pathology and Hemotology	Ramon N. Kranwinkel, M.D.
Pathology	John L. Meyer, M.D.
Public Health	Hans H. Neumann, M.D.
Diagnostic Radiology	M.B. Ozonoff, M.D.
Obstetrics and Gynecology	Stewart J. Petrie, M.D.
Neurosurgery	Melville P. Roberts, M.D.
Cardiology	Michael A. Rossi, M.D.
Internal Medicine and Rheumatology	Robert T. Schoen, M.D.

CSMS Staff

Executive Director	Timothy B. Norbeck
Associate Executive Director	Josephine P. Lindquist
Director of Public Affairs	Raymond T. Sullivan
Director of Special Programs	Cameron C. Staples
Coordinator Medical Courtesy Card	Margaret K. Connelly
Membership Department	Dorothy M. Stratton
Placement Service	Valerie A. Redman
Management Information Systems	Deborah P. Titus
Accountant	Marc A. Sullivan
Secretary	Patricia A. King
Secretary	Denyse M. Malboeuf

Neurofibromatosis: Current Concepts

ARTHUR T. ROSENFIELD, M.D.

Introduction

This is the era of the specialist. Although neurofibromatosis (NF) is a common congenital disorder, it has protean manifestations so that the patient's initial presentation can be to any physician. Despite the recent publicity given to NF by the play and movie, "The Elephant Man," the disease can present in subtle and unexpected ways, and many patients are still misdiagnosed and mistreated. Few physicians have seen many affected patients or many of its manifestations. Only recently have we begun to fulfill our obligation to the patient to provide appropriate diagnosis and coordinated care.

The founding of the National Neurofibromatosis Foundation in 1978 was a major step forward in providing a resource for patient and physician alike so that optimal care could be provided, as well as money raised for research. Chapters exist in 22 states, including the State of Connecticut. Neurofibromatosis clinics around the country, including those both at Yale (Phone 203-785-2660) and the University of Connecticut (Phone 203-674-2676), have recently been founded and serve as referral centers both for limited consultation and for continuing care. The clinics provide multidisciplinary expertise not otherwise available.

This special issue is essentially a symposium on NF as we now understand it. The inspiration for the symposium came from reports of patients seen at the University of Connecticut and Yale NF Clinics, and at meetings of the Connecticut Chapter of the NF Foundation. Many of these individuals described physician errors in recognizing NF and providing appropriate care. These errors were inevitable, given the remarkable spectrum of presentation of this disorder and the wealth of new information about NF to be learned. Therefore, this volume reviews older information about NF and presents new material as well. It is written entirely by people who are affiliated with the Yale NF Clinic and/or the NF Society.

Dr. Margretta Seashore, who contributed the important article on the genetics of NF, is in charge of the Yale NF Clinic and is Medical Consultant to the State NF Chapter. Her article includes information not only on genetics, but on other aspects of the disorder, such as the dermatologic manifestations.

Dr. Bennett Shaywitz, who specializes in pediatric neurology, and his colleague Sheila Gillespie, provide a major contribution to this symposium. Among the neurological problems they describe that are associated with NF are not only tumors but other difficult-to-recognize disturbances such as learning disabilities and visual/perceptual deficits. Identification of these aspects of the disorder are necessary for appropriate therapy.

Dr. Sally Rudicel, who specializes in pediatric orthopedics and who is the Orthopedic Consultant to the Yale NF Clinic, presents the aspects of NF that are related to her specialty. This article is significant because many of these abnormalities can be corrected if they are appreciated early enough. Using the information in her article, physicians should have an easier time in recognizing the lesions she describes and in taking appropriate action.

Dr. Henry Black, an internist specializing in hypertension, and his fellow, Dr. John Setaro, have written about hypertension as it relates to neurofibromatosis. They stress the difference in etiology of hypertension in pediatric and adult patients with this disorder. The paper is interesting and useful.

Dr. Nancy Rosenfield, who specializes in pediatric radiology, is the Imaging Consultant to the NF Clinic, as well as Assistant Medical Director of the Connecticut NF Chapter. She and I have written about the role of imaging in the evaluation of NF patients. This is a difficult subject. Enough minor and major abnormalities are potentially present in individuals affected with NF to justify ordering almost any imaging study. In addition, the past few years have witnessed an incredible revolution in radiology as ultrasonography, computed tomography, and magnetic resonance imaging have become available. In some situations these new techniques have replaced older ones, while in others they provide different complementary information without obviating the need for standard roentgenograms. Our understanding of these new tools is evolving, but the basic underlying principle has always been to order studies that are necessary and appropriate and to avoid those associated with significant risk or

---

ARTHUR T. ROSENFIELD, M.D., Guest Editor, Professor of Diagnostic Radiology, Yale University School of Medicine; Chief, Section of Computed Tomography, Yale-New Haven Hospital.

discomfort as much as possible. We discuss the use of contemporary imaging in making diagnoses and determining therapy.

In the intial editorial, Dr. Allan Rubenstein, a neurologist with a major commitment to NF research who is Head of the Medical Advisory Board of the National NF Foundation, discusses the exciting new research now in progress. Neurofibromatosis has, until recently, been relatively neglected by investigators, and the remarkable change which has taken place in the past decade is dramatic. As he notes, information from this laboratory work will undoubtedly be applicable to other disorders besides NF.

Betty Bonus, President of the Connecticut Chapter of the NF Society and one of the founders of this Chapter, provides a second editorial which deals primarily with the Connecticut Chapter. The Chapter provides advice, support groups, and other aid to individuals and families. In addition, it is active in raising money for NF research. Ms. Bonus, along with other chapter members, has recently created an information kit for physicians. As she notes in her editorial, these kits should be received by Connecticut physicians soon after they receive this issue.

This issue, and the NF kit being mailed separately, are an important part of the creation of a new era for the NF patient in Connecticut. We are grateful to the Editor for giving us an opportunity to review standard concepts of NF to provide an update on new ones, and to integrate the information to form a coherent picture. Our goal is to provide information to physicians so that they can identify affected individuals, provide them with appropriate care, and refer them to support groups when indicated.

NEUROMATA

Nearly a century ago Odier recognized that tumors may grow from nerves. Neuromata have been classified according to Virchow as true and false. *True neuromata* are tumors arising from or composed of actual nervous tissue. They are exceedingly rare and are found practically only in connection with the sympathetic system. They are benign and vary in size from that of a pea to that of a child's head. They may be relatively soft or very hard. Multiple, true neuromata have been observed chiefly in children. They have been distributed in the peripheral part of the body under the skin. They are very numerous; in Bruns' case 160 were counted. The patients otherwise are quite well.

The *false neuromata* are tumors which originate in the perineurium, epineurium, or endoneurium. They may be neurofibroma, neurosarcoma, neuromyxoma, etc. Although they develop on all the nerves, the spinal is that chiefly affected. Their etiology is obscure. Usually they develop in the first half of life, and in many instances have been hereditary. In multiple false neuromata (general neurofibromatosis) large numbers of tumors form on many or all of the peripheral nerves. R.W. Smith has reported a case in which 450 were counted on one extremity and 2,000 were present on the body. All types—plexiform neuromata, pachydermatocele, or neuromata elephantiasis and multiple neuromata, neurofibromata, or molluscum fibrosum (von Recklinghausen's disease), as well as tubercula dolorosa—are expressions of the same abnormal tendency. These lesions may be associated with pigmentation of the skin in the form of freckles, blotches, or diffuse areas.

The most prominent *symptom* is pain, which radiates from the tumor to the periphery of the nerve. It is usually intermittent, but may become continuous and agonizing. Paresthesia is occasionally observed, weakness is rare, and the deep reflexes are seldom affected.

The only available *treatment* is excision, although Ludwig Kenez reported that the hypodermic administration of fibrolysin produced successful results.

Lewis J. Pollock.

References

Odier: Manuel de Med Pratique, Génève, 1811.

Smith, RW: A Treatise on Neuroma, Dublin 1849.

Verocay: Zeigler's Beitr, 1910, xlviii, 1.

Bassoe P: Jour Nerv and Ment Dis 1915, xlii, 12.

Kenez L: Deut med Woch (abstract in Norsk Mag for Laegevidensk 1918, lxxix, 122.

— Cecil, Russell L, *A Text-Book of Medicine*, W.B. Saunders Co, New York 1930, pp. 1400-1401.

Neurofibromatosis: Current Concepts

ARTHUR T. ROSENFIELD, M.D.

Introduction

This is the era of the specialist. Although neurofibromatosis (NF) is a common congenital disorder, it has protean manifestations so that the patient's initial presentation can be to any physician. Despite the recent publicity given to NF by the play and movie, "The Elephant Man," the disease can present in subtle and unexpected ways, and many patients are still misdiagnosed and mistreated. Few physicians have seen many affected patients or many of its manifestations. Only recently have we begun to fulfill our obligation to the patient to provide appropriate diagnosis and coordinated care.

The founding of the National Neurofibromatosis Foundation in 1978 was a major step forward in providing a resource for patient and physician alike so that optimal care could be provided, as well as money raised for research. Chapters exist in 22 states, including the State of Connecticut. Neurofibromatosis clinics around the country, including those both at Yale (Phone 203-785-2660) and the University of Connecticut (Phone 203-674-2676), have recently been founded and serve as referral centers both for limited consultation and for continuing care. The clinics provide multidisciplinary expertise not otherwise available.

This special issue is essentially a symposium on NF as we now understand it. The inspiration for the symposium came from reports of patients seen at the University of Connecticut and Yale NF Clinics, and at meetings of the Connecticut Chapter of the NF Foundation. Many of these individuals described physician errors in recognizing NF and providing appropriate care. These errors were inevitable, given the remarkable spectrum of presentation of this disorder and the wealth of new information about NF to be learned. Therefore, this volume reviews older information about NF and presents new material as well. It is written entirely by people who are affiliated with the Yale NF Clinic and/or the NF Society.

Dr. Margretta Seashore, who contributed the important article on the genetics of NF, is in charge of the Yale NF Clinic and is Medical Consultant to the State NF Chapter. Her article includes information not only on genetics, but on other aspects of the disorder, such as the dermatologic manifestations.

Dr. Bennett Shaywitz, who specializes in pediatric neurology, and his colleague Sheila Gillespie, provide a major contribution to this symposium. Among the neurological problems they describe that are associated with NF are not only tumors but other difficult-to-recognize disturbances such as learning disabilities and visual/perceptual deficits. Identification of these aspects of the disorder are necessary for appropriate therapy.

Dr. Sally Rudicel, who specializes in pediatric orthopedics and who is the Orthopedic Consultant to the Yale NF Clinic, presents the aspects of NF that are related to her specialty. This article is significant because many of these abnormalities can be corrected if they are appreciated early enough. Using the information in her article, physicians should have an easier time in recognizing the lesions she describes and in taking appropriate action.

Dr. Henry Black, an internist specializing in hypertension, and his fellow, Dr. John Setaro, have written about hypertension as it relates to neurofibromatosis. They stress the difference in etiology of hypertension in pediatric and adult patients with this disorder. The paper is interesting and useful.

Dr. Nancy Rosenfield, who specializes in pediatric radiology, is the Imaging Consultant to the NF Clinic, as well as Assistant Medical Director of the Connecticut NF Chapter. She and I have written about the role of imaging in the evaluation of NF patients. This is a difficult subject. Enough minor and major abnormalities are potentially present in individuals affected with NF to justify ordering almost any imaging study. In addition, the past few years have witnessed an incredible revolution in radiology as ultrasonography, computed tomography, and magnetic resonance imaging have become available. In some situations these new techniques have replaced older ones, while in others they provide different complementary information without obviating the need for standard roentgenograms. Our understanding of these new tools is evolving, but the basic underlying principle has always been to order studies that are necessary and appropriate and to avoid those associated with significant risk or

---

ARTHUR T. ROSENFIELD, M.D., Guest Editor, Professor of Diagnostic Radiology, Yale University School of Medicine; Chief, Section of Computed Tomography, Yale-New Haven Hospital.

discomfort as much as possible. We discuss the use of contemporary imaging in making diagnoses and determining therapy.

In the intial editorial, Dr. Allan Rubenstein, a neurologist with a major commitment to NF research who is Head of the Medical Advisory Board of the National NF Foundation, discusses the exciting new research now in progress. Neurofibromatosis has, until recently, been relatively neglected by investigators, and the remarkable change which has taken place in the past decade is dramatic. As he notes, information from this laboratory work will undoubtedly be applicable to other disorders besides NF.

Betty Bonus, President of the Connecticut Chapter of the NF Society and one of the founders of this Chapter, provides a second editorial which deals primarily with the Connecticut Chapter. The Chapter provides advice, support groups, and other aid to individuals and families. In addition, it is active in raising money for NF research. Ms. Bonus, along with other chapter members, has recently created an information kit for physicians. As she notes in her editorial, these kits should be received by Connecticut physicians soon after they receive this issue.

This issue, and the NF kit being mailed separately, are an important part of the creation of a new era for the NF patient in Connecticut. We are grateful to the Editor for giving us an opportunity to review standard concepts of NF to provide an update on new ones, and to integrate the information to form a coherent picture. Our goal is to provide information to physicians so that they can identify affected individuals, provide them with appropriate care, and refer them to support groups when indicated.

NEUROMATA

Nearly a century ago Odier recognized that tumors may grow from nerves. Neuromata have been classified according to Virchow as true and false. *True neuromata* are tumors arising from or composed of actual nervous tissue. They are exceedingly rare and are found practically only in connection with the sympathetic system. They are benign and vary in size from that of a pea to that of a child's head. They may be relatively soft or very hard. Multiple, true neuromata have been observed chiefly in children. They have been distributed in the peripheral part of the body under the skin. They are very numerous; in Bruns' case 160 were counted. The patients otherwise are quite well.

The *false neuromata* are tumors which originate in the perineurium, epineurium, or endoneurium. They may be neurofibroma, neurosarcoma, neuromyxoma, etc. Although they develop on all the nerves, the spinal is that chiefly affected. Their etiology is obscure. Usually they develop in the first half of life, and in many instances have been hereditary. In multiple false neuromata (general neurofibromatosis) large numbers of tumors form on many or all of the peripheral nerves. R.W. Smith has reported a case in which 450 were counted on one extremity and 2,000 were present on the body. All types—plexiform neuromata, pachydermatocele, or neuromata elephantiasis and multiple neuromata, neurofibromata, or molluscum fibrosum (von Recklinghausen's disease), as well as tubercula dolorosa—are expressions of the same abnormal tendency. These lesions may be associated with pigmentation of the skin in the form of freckles, blotches, or diffuse areas.

The most prominent *symptom* is pain, which radiates from the tumor to the periphery of the nerve. It is usually intermittent, but may become continuous and agonizing. Paresthesia is occasionally observed, weakness is rare, and the deep reflexes are seldom affected.

The only available *treatment* is excision, although Ludwig Kenez reported that the hypodermic administration of fibrolysin produced successful results.

Lewis J. Pollock.

References

Odier: Manuel de Med Pratique, Génève, 1811.

Smith, RW: A Treatise on Neuroma, Dublin 1849.

Verocay: Zeigler's Beitr, 1910, xlviii, 1.

Bassoe P: Jour Nerv and Ment Dis 1915, xlii, 12.

Kenez L: Deut med Woch (abstract in Norsk Mag for Laegevidensk 1918, lxxix, 122.

— Cecil, Russell L, *A Text-Book of Medicine*, W.B.
Saunders Co, New York 1930, pp. 1400-1401.

Neurofibromatosis: Clinical and Genetic Features

MARGRETTA R. SEASHORE, M.D.

Neurofibromatosis is a disorder which has been known for over a century, and which affects more than one in 3000 individuals. With manifestations which involve nearly every system of the body, it is of interest to medical practitioners regardless of specialty, from dermatology to orthopedics.[1,2]

Clinical manifestations of neurofibromatosis (NF) are protean. There are no general physiologic or anatomic principles which can guide the practitioner in predicting which organs may be affected. Because of the broad clinical spectrum of the disorder, it is important to investigate signs and symptoms which seem to be unrelated.

The most obvious physical finding is a number of lightly pigmented, well demarcated spots, cafe-au-lait spots, over the skin of the face, trunk, and extremities.[3] NF can involve both peripheral and central nervous systems. Neurofibromata can cause trouble, usually because of their location. In the central nervous system, tumors of the optic nerve threaten vision, and tumors of the auditory nerve, unable to expand within the bony space, become symptomatic because of compression. The skeleton is affected in 2-3% of persons with NF, usually in childhood and adolescence.[4] In early childhood, bony dysplasias and pathologic fractures are the most common skeletal manifestations. Scoliosis is a threat at adolescence, and can be refractory to conservative treatment.

Precocious puberty, growth disorders, learning disability, seizures, and brain tumors can all be part of the spectrum of this disorder. More rarely, NF can effect the autonomic nervous system, leading to gastrointestinal dysfunction. Hypertension, on the basis of renal artery stenosis in childhood or pheochromocytoma in adulthood, is among other manifestations of which the physician must be aware.[4]

The diagnosis of NF in the patient with many of the symptoms and signs mentioned is not difficult. The presence of more than five true cafe-au-lait spots, greater than 1.5 cm (in the adult) or 0.5 cm (in the child) is presumptive evidence for this disorder,[3] when other disorders which can demonstrate cafe-au-lait spots have been excluded. The presence of one or two cafe-au-lait spots do not provide evidence for this condition, as that is a finding commonly seen in the normal population. Isolated neurofibromata are not pathognomonic for this disorder, but when seen in conjunction with more than five cafe-au-lait spots, surely represent NF. Other findings, such as Lisch nodules, seen by slit lamp examination of the iris, are helpful, but not diagnostic alone.

It is known that NF is inherited as an autosomal dominant condition caused by a single gene. Evidence for this assertion comes from large family studies which demonstrate that an average of 50% of the offspring of affected individuals are themselves affected.[3] Males and females are equally affected, and affected males can have affected sons, thus excluding X-linked inheritance. Because only about 50% of affected individuals have an affected parent, it is concluded that about half of the cases represent new mutations. Nothing is known as yet about the location or function of this gene. It has not as yet been shown to be linked to any other known genetic marker, nor has it been mapped to a specific chromosomal location.

Accurate genetic counseling is an important part of the medical management of families affected with NF. An understanding of autosomal dominant inheritance must be conveyed to the family. The considerable amount of variability in expression of the gene both within and among affected families, and the lack of concordance among relatives as to kind or severity of manifestations makes careful family evaluation mandatory. Accurate risk assessment requires careful physical examination of all potentially affected family members; not infrequently people are unaware of the presence of cafe-au-lait spots in themselves and in other family members. Just as often, individuals may mistake pigmented scars or lentigines for cafe-au-lait spots, and become unduly alarmed.

It is important to recognize the age dependence of many of the manifestations of NF.[2] This information can direct the physician's attention to the systems at highest risk, and thus provide direction to the evaluation.

In the first few years of life, cafe-au-lait spots are the most common manifestation. Skeletal dysplasias, particularly of the tibia and fibula ocur in 0.5-1.0% of infants and young children with NF. Early treatment plays

---

MARGRETTA R. SEASHORE, M.D., Associate Professor of Human Genetics and Pediatrics; Yale University School of Medicine; Director, Neurofibromatosis Clinic, Yale-New Haven Hospital.

a major role in the successful resolution of these and prevents pathologic fractures and severe deformity. Optic neuroma is another threat in this age group. It is rare after the age of six years.

Learning disability may become manifest in the early school years, and often responds to aggressive educational intervention. Neurofibromata may begin to appear at this time as well. Other than these, this is a relatively quiescent period in the life of a child with NF.

Adolescence is a time which requires vigilance and sensitivity on the part of the physician. During this period of rapid growth and pubertal development, more neurofibromata typically begin to appear. While these are rarely of functional significance, they become of cosmetic importance as self-image becomes a major focus of the adolescent's attention. The provision of accurate and complete information is crucial to the adolescent. Many of these children have read about the "elephant man," and are concerned that they will look like this. They can be reassured that if severe deformities of that kind have not occurred by adolescence, they will not appear. In this context, one can point out that many geneticists today do not believe that Joseph Merrick, the so-called "elephant man," was affected with NF. At this time information about the genetic risks must be provided, so that unplanned pregnancy is not complicated by the additional problem of prior lack of knowledge of risk to the offspring. If the young person has an affected parent, any conflict resulting from the knowledge that the offending gene was passed on by the parent must be recognized and dealt with constructively.

The adult affected with NF must also be made aware of the 50% risk that a child will be affected with NF, and that there is no correlation between the severity of the condition in the parent and that in the prospective child. Growth of neurofibromata also continues in adulthood, and there may be need for cosmetic surgery, particularly if the face is involved. The fact that the disorder often worsens during pregnancy must be made known to affected women. It is in this age group that the incidence of central nervous system tumors rises.

Appropriate management of NF requires an understanding of several important principles:

- The age dependent nature of many of the manifestations.
- The large degree of variability within and among affected families.
- The autosomal dominant inheritance of the disorder, leading to a 50% risk for affected persons of having affected children.
- The need of affected persons and their families for accurate information, sensitively provided.
- The multisystem involvement which demands a multidisciplinary approach to the management of neurological, developmental, skeletal, ophthalmologic, and psychosocial problems.

It is obvious that there is much left to learn about this condition. The gene must be localized and characterized if we are to understand how it functions. Such identification of the NF gene would allow for more accurate genetic counseling and for prenatal diagnosis. More must be learned about the biology of the disorder, whether this knowledge comes from learning how the gene works, or from more classical study of protein and cellular function.

Ways must be sought to slow the growth of neurofibromata, both central and peripheral. The surgical treatment of these tumors has been fraught with difficulty, and attempts with pharmacological therapy have not been fruitful.

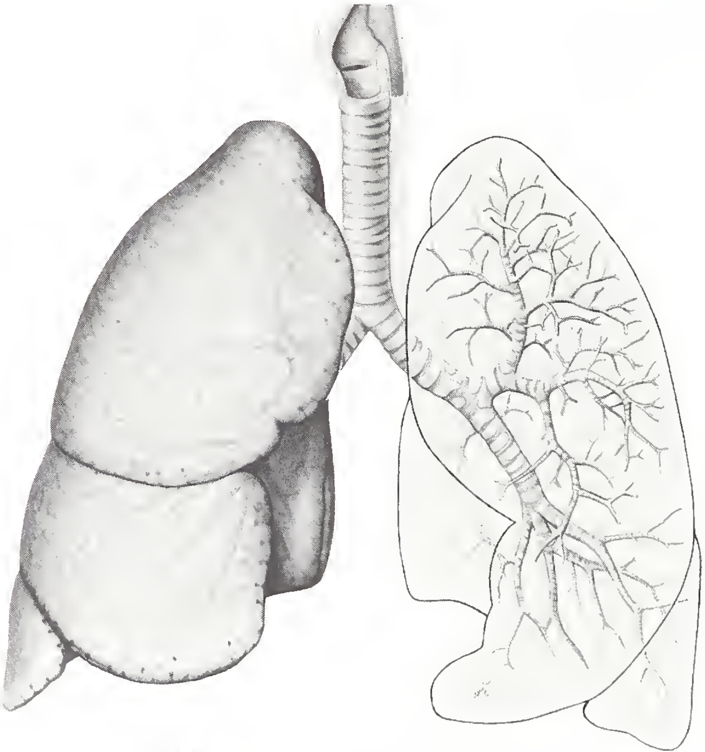
A better understanding of the pathophysiology of the learning disability would be of great value. At the present time, educational intervention is the mainstay of management, but more direct treatment would be welcome.

Much progress has been made in the management of NF. Present information must be applied to the care of affected individuals and their families, while new knowledge is sought which will make the conquest of this disorder a reality.

REFERENCES

1. Treves Sir Frederick, The Elephant-Man, Brit Med J, 1886, 2:1188-1189.
2. Riccardi VM and Eichner JE. Neurofibromatosis Phenotype, Natural History and Pathogenesis, 1986.
3. Crowe FW, Schull WJ and Neel JV. A Clinical Pathological and Genetics Study of Multiple Neurofibromatosis. Chas. Thomas, Springfield Illinois, 1956.
4. Riccardi VM. Medical Progress Von Recklinghausen Neurofibromatosis. N Engl J Med December 31, 1981, 305:1617-1631.

Consider the causative organisms...



Ceclor®
cefaclor
250-mg Pulvules® t.i.d.

offers effectiveness against the major causes of bacterial bronchitis

H. influenzae, *H. influenzae*, *S. pneumoniae*, *S. pyogenes*
(ampicillin-susceptible) (ampicillin-resistant)

Brief Summary. Consult the package literature for prescribing information.

Indications and Usage. Ceclor® (cefaclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae (Diplococcus pneumoniae)*, *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci)

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Ceclor

Contraindication: Ceclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics

Warnings: IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES

Antibiotics, including Ceclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins), therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone In moderate to severe cases, management should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C difficile* Other causes of colitis should be ruled out

Precautions: *General Precautions* — If an allergic reaction to Ceclor® (cefaclor, Lilly) occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e g , pressor amines, antihistamines, or corticosteroids

Prolonged use of Ceclor may result in the overgrowth of nonsusceptible organisms Careful observation of the patient is essential If superinfection occurs during therapy, appropriate measures should be taken

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug

Ceclor should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended

As a result of administration of Ceclor, a false-positive reaction for glucose in the urine may occur This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis

Usage in Pregnancy — Pregnancy Category B — Reproduction studies have been performed in mice and rats at doses up to 12 times the human dose and in ferrets given three times the maximum human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Ceclor® (cefaclor, Lilly) There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed

Nursing Mothers — Small amounts of Ceclor have been detected in mother's milk following administration of single 500-mg doses Average levels were 0.18, 0.20, 0.21, and 0.16 mcg/ml at two, three, four, and five hours respectively Trace amounts were detected at one hour. The effect on nursing infants is not known Caution should be exercised when Ceclor is administered to a nursing woman.

Usage in Children — Safety and effectiveness of this product for use in infants less than one month of age have not been established

Adverse Reactions: Adverse effects considered related to therapy with Ceclor are uncommon and are listed below

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70)

Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely

Hypersensitivity reactions have been reported in about 1.5 percent of patients and include morbilliform eruptions (1 in 100). Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Ceclor. Such reactions have been reported more frequently in children than in adults Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy No serious sequelae have been reported Antihistamines and corticosteroids appear to enhance resolution of the syndrome

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain — Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician

Hepatic — Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40)

Hematopoietic — Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal — Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[061782R]

Note Ceclor® (cefaclor, Lilly) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever See prescribing information.

© 1984, ELI LILLY AND COMPANY

Lilly
400441

Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285

Eli Lilly Industries, Inc.
Carolina, Puerto Rico 00630

Neurological Manifestations of Neurofibromatosis

SHEILA M. GILLESPIE, M.S.N. AND BENNETT A. SHAYWITZ, M.D.

Neurofibromatosis may be the most common single gene defect that affects the nervous system.[1-3] This hereditary disease is an autosomal dominant trait with a frequency rate of 1 in 3000 live births.[1,4-7] Many incomplete or abortive forms exist, with over 50% of cases being sporadic mutations.[1,5,7-9]

Two major forms of neurofibromatosis are seen. The classic picture is von Recklinghausen's neurofibromatosis in which there are multiple areas of increased skin pigmentation, tumors of both the peripheral and central nervous system, and a variety of endocrine, skeletal, vascular, and visceral abnormalities.[1,4-6,10] A second form, central neurofibromatosis, is characterized primarily by bilateral acoustic neuromas with fewer cutaneous manifestations.[2,7,11] The incidence of neurological complications in neurofibromatosis is difficult to estimate, although Canale reported that 46% of his patients had neurological manifestations of the disease.[12] However, this was in an era preceding non-invasive diagnostic studies of the CNS.

In order to illustrate the protean neurological complications of neurofibromatosis we begin our discussion with a case report.

Case Report

L.J. was the product of a 32-week gestation delivered by repeat cesarian section to a mentally retarded mother with known neurofibromatosis, scoliosis, enucleation of one eye, and a seizure disorder controlled with phenobarbital. Birth and neonatal history were unremarkable. Family history was significant for multiple generations of neurofibromatosis, including patient's sibling, mother, maternal grandmother, and maternal great-aunt.

She presented to the Yale Pediatric Neurology clinic at 18 months of age for developmental delay. She had not been able to sit unsupported until 17 months, a time when she spoke her first word. She crawled using a military creep, but was unable to walk. At this visit, she had a non-focal neurological examination. Two independent examiners noted the presence of 2 cafe-au-lait lesions on her trunk.

One month later, her examination was remarkable for multiple cafe-au-lait spots on her abdomen, back, and extremities. An electroencephalogram (EEG) and plain skull films were normal.

She was subsequently lost to follow-up, after moving to another state with her parents, who ultimately abandoned her. She was placed in the custody of her paternal grandmother who resides here in Connecticut. Reports of medical care during this period, although scarce, include references to poor vision, "eye muscle" surgery, and the onset of seizures at age 5 for which a variety of anticonvulsants were prescribed. Intelligence testing at ages 5 and 7 years using the Stanford-Binet, revealed a full scale I.Q. of 64 and 67, respectively. A CT scan of her head at age 13 revealed a right optic glioma. An EEG the same year, was described as "diffusely abnormal."

She was re-referred to our neurology clinic at age 16 by child psychiatry to rule out a neurological cause for a four month history of depressed mood, lethargy, weight loss, oppositional behavior, and impaired self-care skills. These behaviors had been noticed at home, as well as in her school program for the trainably retarded. Her current anticonvulsant medication included ethosuximide 500 mg t.i.d. and carbamazepine 100 mg t.i.d.; she had been seizure-free for several years.

The neurological examination revealed a thin, sexually mature, adolescent with a childish affect. She was able to do simple tasks, but became easily confused. Her speech was slow and and slightly dysarthric. Cranial nerve examination revealed full visual fields, right optic disc pallor (left was not visualized), impaired upward gaze, and an impersistence of lateral gaze. Facial musculature was symmetric, and facial sensation was intact. Hearing was grossly normal. Tongue and palate were midline. Spinal accessory nerve testing revealed decreased strength and an inability to elevate the shoulder on the right; the left was normal. Motor examination revealed normal tone bilaterally with a slight decrease of right fine finger movements. Gross muscle strength was 3-4/5 in the right upper extremity and 5/5 in all other major muscle groups. Sensation was grossly intact. Deep tendon reflexes were 1+ in all extremities except for the right patellar which was 2+. Plantar resonses were both flexor. Gait was normal as was her cerebellar examination. An upper thoracic scoliosis was noted with a rotation to the right.

A CT scan of her head indicated an extensive right optic glioma without evidence of intracranial involvement. There was also evidence of widening of the internal auditory canals bilaterally, with the left side more prominent; no soft tissue mass was visualized. This finding was believed to represent dural ectasia. An EEG showed moderate slowing of background rhythms, symmetrically, with frequent bursts of poorly organized irregular spike and wave and high amplitude slow wave discharges at a frequency of 3-5 Hz. These occurred in a generalized synchronous distribution, occasionally localizing to the right hemisphere. No clinical signs were correlated with these burst changes.

Anticonvulsant blood levels were considered to be in the toxic range for ethosuximide and subtheraputic for carbamazepine. All other blood tests showed results within normal limits. Her ethosuximide dosage was decreased, and her affect improved rapidly. An increase in weight was seen within two weeks.

Ongoing evaluation will include a scoliosis series, and a magnetic resonance imaging (MRI) of her brain to rule out intracanalicular acoustic neuroma. If her deep tendon reflexes remains abnormal, and it is otherwise clinically indicated, an MRI of her spine will be performed to rule out intraspinal tumor. An ophthalmologist and neurosurgeon are being consulted regarding treatment for the optic glioma. The neuropsychiatric evaluation is continuing in order to establish any changes from prior testing. In addition, the patient was referred to our Neurofibromatosis/Genetics clinic for coordination of care.

SHEILA M. GILLESPIE, M.S.N., Nurse Practitioner, Clinical Research Coordinator, Department of Pediatric Neurology, Yale University School of Medicine and Yale-New Haven Hospital. BENNETT A. SHAYWITZ, M.D., Associate Professor of Pediatrics, and Yale Child Study Center, Yale University School of Medicine; Director, Pediatric Neurology, Yale-New Haven Hospital.

This work was supported in part by NIH grants ROINS21786, RR00125, and P50MH30929.

Clinical Features

Patients with neurofibromatosis can be afflicted with a great variety of medical, neurological, and psychosocial problems. "Neurofibromatosis reflects the process of dysplasia, hyperplasia, and neoplasia at all levels of the central and peripheral neuraxis."[13] L.J., described above, has seizures, mental retardation, speech impediment, optic glioma, scoliosis, symptoms of depression, and the possibility of an early growing acoustic neuroma. Her case, although not typical, illustrates the variety of neurological complications which may be seen. In this section we shall discuss some of the more common neurological findings in patients with neurofibromatosis (see Table 1).

Table 1
NEUROLOGICAL MANIFESTATIONS OF NEUROFIBROMATOSIS

- Central nervous system
    - intracranial tumors
    - headaches
    - seizures
    - macrocephaly
    - cerebral vascular accident
    - precocious puberty
    - short stature
    - spinal tumors
    - other spinal abnormalities (scoliosis, syringomyelia, etc.)
- Peripheral nervous system
    - subcutaneous neurofibromas
    - plexiform neuromas
- Autonomic nervous system
    - Lisch nodules
    - pheochromocytoma
    - ganglioneuromas
- Cognitive/language/psychosocial
    - mental retardation
    - learning disabilities
    - attention deficit disorder
    - depression/anxiety

Central nervous system

Tumors of the brain, meninges, and cranial nerves are often reported in neurofibromatosis. The most common tumors identified are optic nerve gliomas which present in 10-50% of neurofibromatosis patients. They occur alone or with other intracranial tumors and are described as multicentric lesions which grow circumferentially around the optic nerve, but sparing the nerve itself.[14,15] (see Figures 1 and 2) As was the case in L.J., optic gliomas often present with symptoms of visual loss or proptosis.[4] Other common intracranial tumors are astrocytomas, meningiomas, and schwannomas, especially involving the eighth cranial nerve.[14] Patients with central neurofibromatosis most commonly present with bilateral acoustic neuromas.[1,4,11,14] The signs and symptoms of intracranial tumors are related to their size and location.[1,4,7,14]

Macrocephaly (head circumference greater than the 97th percentile) is present in 30% of patients, often developing postnatally. Macrocephaly is often not explained by either obstruction by tumor or a communicating hydrocephalus.[5,7]

Headaches are a common complaint, ranging from simple tension headaches to migraine.[7] These may be related to tumors or hypertension but frequently their etiology is unknown.

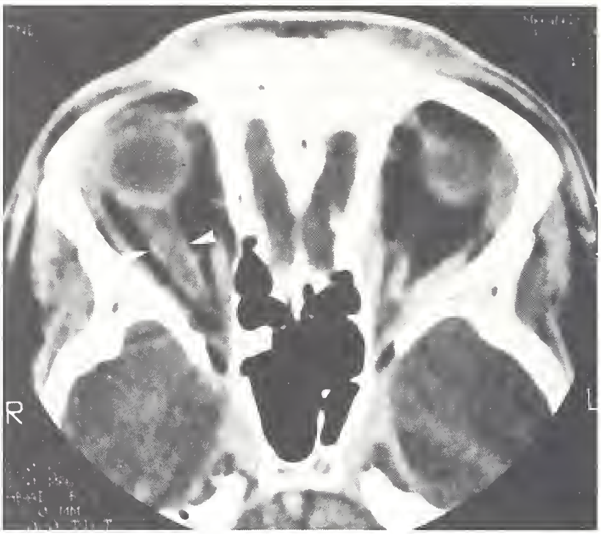


Figure 1
Axial CT of right optic glioma in 16 y.o. patient with neurofibromatosis. Note increased size of right optic nerve sheath (arrowheads).

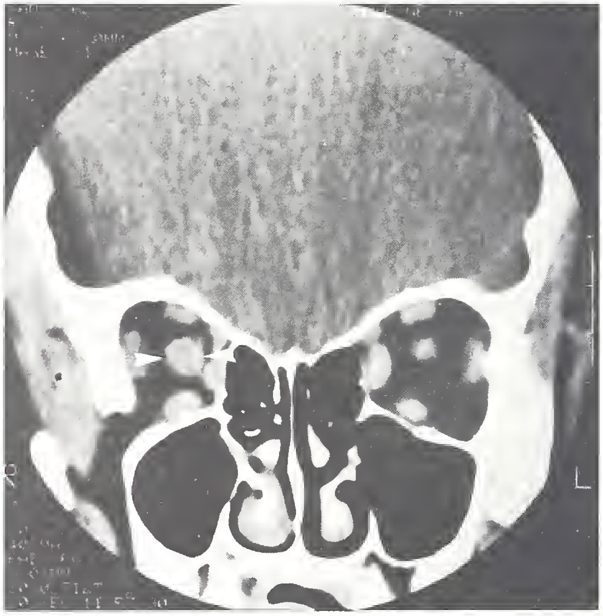


Figure 2
Coronal view of same optic glioma, showing enlargement of the optic nerve and surrounding tissue (arrowheads).

Seizures occur at a rate ten times that of the general population.[5] Both focal and generalized epilepsy are reported. Seizures are not always associated with intracranial tumors.[1,4,7,14] In addition, a wide variety of EEG changes are seen in these patients.

Increasingly severe headaches, mental retardation, and focal seizures not explained by a brain tumor, may be signs of cerebrovascular disease, another CNS finding. Occlusion of the internal carotid artery is the most common finding.[1,7]

Precocious puberty, often associated with a posterior hypothalamic hamartoma is another complication of neurofibromatosis, and is sometimes accompanied by short stature,[1,4,5,7,14,16] though gigantism associated with a hypothalamic mass has been reported as well.[17]

Tumors of the spine are another frequent complication. The thoracic spine is the most common location for solitary or multiple extradural and/or intradural lesions. Other spinal problems include syringomyelia,[4,5,10,14] intrathoracic meningocele, scalloping of vertebral bodies, and spina bifida occulta.[1,10] Kyphoscoliosis has been found in approximately 32% of children and an even greater percentage of adults.[1,5,7,14,18]

Peripheral nerve tumors

Subcutaneous neurofibromas are more often located on the trunk along major nerve branches.[4,14] They are composed of many different cell types: neurons, Schwann cells, fibroblasts, pigment cells, etc.[1,4,5,7] They may appear at any time, and tend to enlarge slowly throughout life. The pedunculated or sessile subcutaneous neurofibromas often do not appear until puberty or later,[5,7] and are the disfiguring tumors typically seen in adult neurofibromatosis patients.

Plexiform neuromas are highly vascular, congenital tumors often located on the limbs rather than the trunk. Despite their histologically benign character, they can cause a cosmetically disfiguring enlargement of bone resulting in a debilitating, functional impairment.[4,5,7,14] The incidence of spinal involvement increases when fibromas covered by hyperpigmented lesions extend to the midline.[7]

Autonomic nervous system

Neurofibromatosis affects many different areas within the autonomic nervous system. The gastrointestinal system, as well as the tongue, adrenal medulla (pheochromocytoma is seen in 5-23% of adults with NF),[4,7,14] iris (Lisch nodules), choroid, and ciliary nerve and body can be involved.[1,4,7] Ganglioneuromas originating from the sympathetic ganglia in the posterior mediastinum have also been reported.[4]

Cognitive, language, and psychological problems

Mental retardation has been reported in 5-10% of neurofibromatosis patients.[1,4,14] In one of the few neuropathological investigations, Rosman and Pearce (1967), noted polymicrogyria, pachygyria, heterotopias, and a disorganization of cortical structure in individuals with both neurofibromatosis and mental retardation. Such abnormalities were not observed in the control groups of normal and mentally retarded individuals without neurofibromatosis. The severity of findings appeared to correlate with the degree of mental deficiency.[19]

Although many authors suggest that more subtle disturbances of learning, attention, and language may be observed in as many as 40% of children with neurofibromatosis,[1,5,7,14,20] this has been difficult to document. To date, one recently published report has examined this issue: Eliason studied 23 children (ages 6-13) with neurofibromatosis referred to a learning disorders clinic. Although nearly all (21/23) had verbal IQ (WISC-R) scores > 80, 9/23 had performance IQ scores of 80. Thirteen of the children were receiving special education services. In contrast to the language deficits which predominate in most of the learning disorder children in her clinic, Eliason found a high proportion of visual-perceptual deficits in the children with neurofibromatosis and learning disorders.[9] Although Eliason does not report any attentional measures in the children she tested, she notes that nearly half of the children in her study had been diagnosed previously as being hyperactive or having attention deficit disorders. Diagnosis of these disorders are discussed in more detail elsewhere.[21,22] This is clearly an emerging area for further investigation.

The psychological implications of this disease can be tremendous. The actual or potential disabilities: disfiguring appearance, seizures, cancer, pain, loss of hearing, loss of vision, learning disabilities, and other complications undoubtedly have an effect on the patient's sense of identity and well being.[7,10] Signs of depression and anxiety may be secondary to the psychological factors described or due to medical complications, such as the toxic anticonvulsant levels in the case presented.

Diagnostic Criteria

The variety of presentations and the varying rates of progression in neurofibromatosis often make it a difficult disease to recognize. However, the criteria used for diagnosis are fairly straightforward. The majority of patients with von Recklinghausen's neurofibromatosis exhibit three findings: 1) Cutaneous lesions which present in the first few years of life are the most easily identifiable. Six or more cafe-au-lait lesions greater than 1-1.5 cm in diameter are considered diagnostic, since they are seen in over 75% of affected patients.[1,7] Axillary freckling is often present, although it is not pathognomonic for neurofibromatosis.[1,4,10] 2) Adult neurofibromatosis patients have multiple subcutaneous nodules which develop throughout life, but often do not present until puberty or early adulthood. 3) Lisch nodules, areas of increased pigmentation of the iris, are found in the majority of neurofibromatosis patients.[1,4,5,7,10] However, Fitzpatrick, et al. found that 50% of normal adults had iris nevi. Examination of prepubertal children with and without neurofibromatosis revealed no Lisch nodules in either group.[23]

The diagnosis of central neurofibromatosis is usually made by the observation of bilateral hearing loss resulting from bilateral acoustic neuromas.[2,11] Associated features include cafe-au-lait lesions and subcutaneous nodules; however, they are found in only 60% of individuals with central neurofibromatosis, and are not considered necessary for diagnosis.[11,24]

Laboratory Findings

No single laboratory test will establish the diagnosis of neurofibromatosis.[5] However, many tests may be useful in confirming abnormalities causing neurological symptoms. In patients with symptomatic optic gliomas, acoustic neuromas, or other intracranial tumors, a CT scan of the head will often reveal the location and extent of involvement. Ventricular dilatation, often without accompanying periventricular hypodensities, has also been reported.[5,15] In patients with central neurofibromatosis, calcification of the choroid plexus is sometimes seen on CT.[25] Magnetic resonance imaging (MRI) may prove to be more specific for certain abnormalities, ie., early growth of tumors in the area of the eighth nerve[26] and abnormalities associated with a seizure focus. Plain radiographic studies are helpful in detecting bony deformities which may be causing neurological symptoms or scoliosis.[5]

The presence of optic nerve involvement in asymptomatic or mildly symptomatic patients with neurofibromatosis has been documented by visual evoked potentials (VEP). Jabbari et al. describe VEP pattern reversal abnormalities in 26%, 3/4 of whom had confirmed CT changes of the optic nerve on the side of the VEP abnormality.[27]

Brain stem evoked responses (BSER or BAER), useful in evaluating hearing loss from acoustic neuromas, may be abnormal in 96% of unilateral tumors and in 91% of small tumors less than 2 cm.[11,28,29] The degree of BSER accuracy in bilateral disease remains controversial.

Neuropsychological testing including individually administered tests of ability (WISC-R, Stanford-Binet) and achievement (Woodcock-Johnson, KABC) should be performed on children with neurofibromatosis who show signs of mental retardation or learning difficulties.[21,22] These tests provide a base for planning the most appropriate and optimal learning environment for the child.[7,9]

Recent research has focused on studies of nerve growth factor (NGF). Serum functional activity of NGF has been shown to be increased in classical neurofibromatosis patients when compared to individuals with central neurofibromatosis.[2,11,30] No differences have been noted between patients with classical or central neurofibromatosis and normal controls.[2,11] The relationship of NGF to pathogenesis is not clear.[4]

Still another area of recent investigation is biopsy of cutaneous lesions. Skin from cafe-au-lait lesions contain macromelanosomes, but these are not unique to patients with neurofibromatosis.[5] Although studies, such as those described above, provide invaluable information, their use in clinical diagnosis and management has not been established.

Riccardi, et al., recommend that all patients with NF have the following: 1) EEG, 2) audiography, 3) slit-lamp exam, 4) radiological survey of skull, optic foramina, and spine, (and internal auditory canals when warranted), 5) cranial CT with and without contrast, and 6) a measurement of a 24-hour urinary excretion levels of epinepherine and norepinepherine.[7] This evaluation is the "gold standard," however the cost and time of this work-up may be prohibitive to many patients and their providers. From a neurological perspective, the extent of testing may be determined on a symptomatic basis as long as neurological follow-up is provided.

Management

Consonant with the suggestions of others, our management of neurological complications in children with neurofibromatosis follows two therapeutic principles: 1) treatment should be symptomatic[1,4] and 2) timely evaluation and surgery may decrease functional and/or life threatening complications.[7,15]

Symptomatic treatment may include the use of anticonvulsants for seizures, analgesics for headaches, psychotherapy for difficult adjustment periods, and speech therapy and/or special education for learning disabilities.[5,7]

Another fairly common neurological complication, precocious puberty, has been successfully treated by Laue, et al., using long-acting luteinizing hormone releasing hormone analogue (LHRH) therapy.[16]

Preventive education is also helpful for many of the complications seen in NF. In particular, patients with central neurofibromatosis need to be informed about the potential for injury and death from drowning and traffic accidents due to vestibular dysfunction and hearing loss, respectively. Kanter, et al., report that ten of their patients died from these preventable injuries.[2]

Surgical intervention is often utilized in patients with neurofibromatosis.[15] Peripheral tumors may be removed for cosmetic reasons or if subject to constant abrasion, because of the potential risk for malignant transformation.[4,7] The decision to remove intracranial tumors is related to their size and location;[1,4,5,15] however, malignant transformation is another reason for surgery.[5] Acoustic neuromas, often seen in central neurofibromatosis, are best operated on when small (< 2 cm).[2,11] Huson and Thrush found that surgical treatment of bilateral acoustic neuromas is as good as for unilateral ones. For eight of 11 cases hearing was preserved to some degree, postoperatively; and no significant hearing loss was noted in four of the eight.[11,31] Kanter et al, also recommended the establishment of tumor size and eighth nerve deficit prior to surgical decision making. In asymptomatic patients, they would not operate. However, if rapid progression occurs over several months, they suggest operating on the most severely affected side.[2] Cheek, et al, agree that unilateral surgery is preferable.[15]

In summary, we have reviewed the clinical features, diagnostic criteria, and management of many of the neurological complications in patients with neurofibromatosis. Because the severity and rate of progression of symptoms can not be predicted,[5] it is important to monitor patients carefully for any existing or potential neurological complications, since they can prove to be life-threatening. Management should incorporate timely evaluation and symptomatic treatment.

REFERENCES

1. Menkes JH. Tumors of the nervous system, in Textbook of Child Neurology, Lea & Febiger, Philladelphia 1985, 567-571.
2. Kanter W, Eldridge R, Fabricant R, Allen J & Koerber. Central neurofibromatosis with bilateral acoustic neuroma: Genetic, clinical, and biochemical distinctions from peripheral neurofibromatosis. Neurology 1980, 30:851-859.
3. Eldridge R. Clinical neurogenetics: Needs versus resources. Neurology 1980, 30:860-863.
4. Berg BO. Degenerative disorders of the central nervous system, in Pediatric Neurology, Swaiman and Wright, eds. CV Mosby, St Louis 1982, 920-925.
5. Lee R. Neurocutaneous syndromes, in Pediatric Neurology, MA Fishman ed. Grune & Stratton, Orlando, 1986, 240-246.
6. Sorensen SA, Mulvihill JJ and Neilsen A. Long-term follow-up of von Recklinghausen neurofibromatosis. Survival and malignant neoplasms. N Engl J Med 1986, 314:1010-1015.
7. Riccardi VM. Medical Progress. Von Recklinhausen neurofibromatosis. N Engl J Med 1981, 305:1617-1627.
8. Blatt J, Jaffe R, Deutsch M & Adkins JC. Neurofibromatosis and childhood tumors. Cancer 1986, 57:1225-1229.
9. Eliason M. Neurofibromatosis: Implications for learning and behavior. Dev & Beh Peds 1986, 7:175-179.
10. Canale DJ & Bebin J. Von Recklinghausen disease of the nervous system, in The Phalomatoses Handbook of Clinical Neurology, edited by PJ Vinken and GW Bruyn, North Holland, Amsterdam 1972, vol 14.
11. Huson SM & Thrush DC. Central neurofibromatosis. Quarterly Journal of Medicine, New Series 1985, 55(218):213-224.
12. Canale DJ, Bebin JJ & Knighton RS. Neurologic manifestations of von Recklinghausen's disease of the nervous system. Confin neurol (Basel) 1964, 24:359-403.
13. Lott IT & Richardson EP. Neuropathological findings and the biology of neurofibromatosis. Advances in Neurology 1981, 29:23-32.
14. Rubenstein AE, Mytilineoau C, Yahr MD & Revoltella RP. Neurological aspects of neurofibromatosis. Advances in Neurology 1981, 29:11-22.
15. Cheek WR, Riccardi VM & Laurent JP. Neurofibromatosis of childhood: Neurosurgical implications. Concepts pediat Neurosurg 1983, 4:319-334.
16. Laue L, Comite F, Hench K, Loriaux DL, Cutler GB & Pescovitz OH. Precocious puberty associated with neurofibromatosis and optic gliomas. AJDC 1985, 139:1097-1100.
17. Duchowny MS, Katz R & Bejar RL. Hypothalamic mass and gigantism in neurofibromatosis: Treatment with bromocriptine. Ann Neurol 1984, 15(3):302-304.
18. Hold JF. Neurofibromatosis in children. AJR 1978, 130:615-639.
19. Rosman NP & Pearce J. The brain in multipe neurofibromatosis (von Recklinghausen's disease): A suggested neuropathological basis for the associated mental defect. Brain 1967, 90:829-838.
20. Riccardi VM. The multiple forms of neurofibromatosis. Pediatr Rev 1982, 3:293-298.
21. Shaywitz SE & Shaywitz BA. Dyslexia/learning disabilities and attention deficit disorder. In Pediatric Neurology, K Swaiman, ed. CV Mosby: St Louis (in press).
22. Shaywitz SE & Shaywitz BA. Attention Deficit Disorder: Current perspectives. In Disorders of Cognition, Attention, and Language: The State of the Art. J Kavanagh (ed) US Government Printing office: Washington, DC (in press).
23. Fitzpatrick TB, Eldridge R, Hall JG, Riccardi VM, Rubenstein AE, Miller RW, Mulvihill JJ, Knudson AG & Bader JL. Problems in diagnosing neurofibromatosis. Advances in Neurology 1981, 29:245-236.
24. Eldridge R. Central neurofibromatosis with bilateral acoustic neuroma. Advances in Neurology 1981, 29:57-66.
25. Superneau DW, Wertelecki W & Conneally PM. Central neurofibromatosis. Am J of Human Genetics 1982, 34:111a.
26. New PF, Bachow TB, Wismer GL, Rosen BR, Brady TJ. MR imaging of acoustic nerves and small acoustic neuromas at 0.6T: a prospective study. AJR 1985, 144:1021-1026.
27. Jabbari B, Maitland CG, Morris LM, Morales J & Gunderson CH. The value of visual evoked potential as a screening test in neurofibromatosis. Arch Opthalmol 1985, 103:404-406.
28. Hart RG, Gardner DP, Howieson J. Acoustic tumours: Atypical features and diagnostic tests. Neurology 1983, 33:211-221.
29. Glasscock ME, Jackson CG, Tosey AF, Dickens JRE, Wiet RJ. Brain stem evoked audiometry in a clinical practice. Laryngoscope, 1979, 7(1):1021-1039.
30. Fabricant RN, Todaro GT, Eldrgidge RE. Increased levels in a nerve growth factor cross reacting protein in central neurofibromatosis. Lancet 1979, 1:4-7.
31. Hughes GB, Sismanis A, Glasscock ME, Hays JW, Jackson CG. Management of acoustic tumors. Laryngoscope 1982, 92:1351-1359.

Blue Cross.
Blue Shield.

CHRIS B. HALL

123 45 6789

70125 740 240
COMPREHENSIVE 07/10/85

Nearly
80 million people
couldn't picture
their lives
without it.

Carry the
Caring Card.®

The Orthopaedic Manifestations of Neurofibromatosis

SALLY RUDICEL, M.D.

Neurofibromatosis is a multisystem disease which has various osseous problems that can affect the growing child or adult. Scoliosis, kyphosis, and pseudarthroses are the most common orthopaedic entities, and the treating physician should be aware of these possibilities. Overgrowth of bones, leg length discrepancy, erosive defects in bone, and subperiosteal bone proliferation may also occur. The clinical expression of these problems is variable, ranging from a minor, asymptomatic occurrence to a very severe stiuation requiring amputation of an extremity.

Occasionally, the orthopaedic problem may be the first evidence of neurofibromatosis. The orthopaedic conditions seen in neurofibromatosis have recently been well described and summarized by Crawford.[1,2]

Spinal Problems

Scoliosis is the most common orthopaedic abnormality associated with neurofibromatosis. It has been reported in as many as 60% of patients with neurofibromatosis.[1] In a general orthopaedic clinical setting or a general scoliosis clinic, 2-3% of the population will have neurofibromatosis as the etiology of their scoliosis. The cause of scoliosis is unknown but may be secondary to osteomalacia, endocrine disturbances, or mesodermal dysplasia. Eighty-one percent of Crawford's patients were female.[2]

The scoliotic curve is usually in the thoracic region, with both right and left convex curves presenting in equal distribution. Scoliosis presents in one of two ways. The typical curve of neurofibromatosis is a short, sharply angulated curve involving four to six vertebral segments. These curves are associated with dystrophic changes in the vertebrae and ribs. These include rib penciling, spindling of the transverse processes, vertebral scalloping, apical vertebral rotation, severe wedging of the vertebrae, foraminal enlargement and adjacent soft tissue neurofibromas.[3] These curves tend to be progressive and do not respond to brace treatment; in fact, Winter reported that none of his patients with dystrophic changes were improved by brace treatment, and bracing should not be attempted. Early fusion often seemed most prudent, and he treated his patients who required surgery with a posterior fusion alone or a posterior fusion and internal fixation, both with good success. Only two of 34 patients developed a pseudarthrosis and each of these had a successful posterior pseudarthrosis repair.[3] Crawford reported a slightly higher incidence of pseudarthrosis.[1]

The second type of curve in neurofibromatosis is similar to the pure idiopathic type. This curve should be treated like an idiopathic curve and will respond in most cases to brace treatment. There are no dysplastic changes in the vertebrae or ribs, and the rate and manner of progression is similar to idiopathic curves. These curves may have a higher rate of pseudarthrosis than pure idiopathic curves treated surgically and possibly a greater rate of progression. In Crawford's series of patients with neurofibromatosis, 56 of 74 patients with scoliosis were of the idiopathic type.[1]

Patients with neurofibromatosis and scoliosis may also develop a sharply angulated kyphosis. The kyphosis may be more pronounced than the scoliosis, and the vertebrae may be very deformed. The pseudarthrosis rate for a posterior fusion in these patients is reportedly high; an anterior fusion or a combined anterior and posterior fusion may be necessary.

There is an association of paraplegia with severe kyphoscoliosis; Curtis reported eight such patients.[4] One must determine whether there is an intraspinal tumor or compression due to the bony deformity of the spine. Extradural dumbbell neurofibromas or intradural extramedullary neurofibromas may cause paraplegia. Vertebral scalloping and hyperplasia, or structural defects in the pedicle, may be signs of such a tumor. A high volume myelogram and CT scan may be indicated in such cases. MRI may also be useful.

Cervical spine abnormalities have been reported but are often asymptomatic. Yong-Hing reported that 44% of patients with scoliosis or kyphoscoliosis had cervical lesions.[5] Patients may present with head and neck masses, torticollis, or dysphagia. The bony abnormalities associated with these problems may be significant.[1] Radiographic examination of the cervical spine is indicated in those patients undergoing traction or general anesthesia.

SALLY RUDICEL, M.D., Assistant Professor of Orthopaedics, Yale University School of Medicine; Department of Orthopaedics and Rehabilitation, Yale-New Haven Hospital.

Pseudarthrosis

Pseudarthrosis has been reported in several bones, including the tibia, ulna, radius, humerus, femur, and clavicle.[1] The tibia is by far the most common bone involved and presents as an anterolateral bow, usually before the age of two. This may often be the first presentation of neurofibromatosis, with other manifestations developing later. An anterolateral bow of the tibia is associated with neurofibromatosis in 97% of the cases.[1] Congenital bowing of the tibia in a posteromedial direction, on the other hand, is not associated with neurofibromatosis.

The cause of the pseudarthrosis is unknown. Only a few surgical specimens have had neurofibromatous tissue at the site of the pseudarthrosis. Patients usually fracture by the age of one and the psuedarthrosis then develops. It is unclear if the neurofibroma grows within the bone cortex causing the fracture and eventual nonunion, or if the lesion is in the soft tissues primarily and involves the bone secondarily.[1] Many methods of surgically stabilizing the pseudarthrosis and providing healing have been proposed. These include autogenous bone grafts, vascularized bone grafts, internal fixation, multiple osteotomies, ankle fusion, amputation, and electromagnetic stimulation. Even with the number of alternatives, a good solution does not yet exist, and treatment to achieve union is difficult. The benefit of surgery after the age of seven, or after three or four procedures is questionable.

Four types of pseudarthrosis are identified. Type I is the bow only, without a fracture, and needs no treatment but observation. Type II has the bow with a widened medullary canal and a tubulation defect; these patients need protection from fracture, usually with a brace. Type III has the bow as well as a cystic lesion which is a prefracture lesion; these patients probably need early bone grafting. Type IV has the bow with fracture, cysts, or a pseudarthrosis;[2] their prognosis is obviously poor. In the long term, these children may do better with amputation rather than suffering numerous operations and prolonged, unsuccessful treatment.

Patients with a pseudarthrosis and neurofibromatosis have few other skeletal problems. Only 5% have an associated scoliosis.[1]

Problems of Bone Growth

Disorders of bone growth are frequently associated with soft tissue changes surrounding the abnormal bones. Crawford reported that 16% of his patients presented with a limb length discrepancy. The changes in bony overgrowth are usually unilateral and involve the lower extremities or head and neck. The bone may be thickened, elongated, or have an irregular cortex. The soft tissue changes may be hemangiomatous lesions, lymphangiomatosis, or elephantiasis.[2]

Limb length discrepancies may be corrected by epiphyseal arrest. Shortening procedures through cortical bone are not recommended because of the possibility of poor healing and of developing a pseudarthrosis. Debulking the excessive soft tissue has proven difficult and often does not improve appearance. However, there is a reported incidence of sarcoma forming in these tissues of two to 16%, and one may need to be more surgically aggressive.[1,6]

Other Findings

Erosive defects in bone may be seen radiographically and are somewhat characteristic of neurofibromatosis. It is unclear if these cystic changes are truly primary and erosive within bone or are secondary from external pressure and erosion. Most authors now feel they are secondary to external neurofibroma. Crawford has continued to observe patients with such cystic lesions, and the lesions have neither progressed nor become symptomatic.[1]

Subperiosteal bone proliferation is a rare lesion, seemingly initiated by minor fractures followed first by subperiosteal bleeding and then bony dysplasia. There does not appear to be involvement of the periosteum by neurofibroma. Massive overgrowth of the soft tissues can occur.

Cortical bone sclerosis and intramedullary linear sclerosis are very rare. Sharif reported a case of neurofibromatosis in a child with intramedullary linear bone sclerosis in the metaphyses of all long bones that also had an undifferentiated sarcoma of the distal tibial metaphysis.[6]

Neurofibromatosis has various orthopaedic manifestations, none of which are pathognomonic. An anterolateral bow or pseudarthrosis of the tibia is highly suggestive, however. A high percentage of patients also have scoliosis, and the short, sharply angulated thoracic curve is more common in neurofibromatosis. Patients with neurofibromatosis may also have a kyphoscoliosis and occasional involvement of the cervical spine. Bony overgrowth and leg length discrepancies can occur. Various radiographic abnormalities are seen, which are often asymptomatic. However, 50-71% of patients with neurofibromatosis have some type of bony lesion.[6] Sometimes, these lesions may make the diagnosis of neurofibromatosis more apparent; on the other hand, patients with the known diagnosis of neurofibromatosis should also be carefully evaluated for the bony problems described in this article.

REFERENCES

1. Crawford AH: Neurofibromatosis in children. Acta Orthopaedica Scandinavica 1986, 57:Suppl 218, 52.
2. Crawford AH, Bagamery N: Osseous manifestations of neurofibromatosis in children. J of Pediatric Orthopaedics 1986, 6:72-88.
3. Winter RB et al: Spine deformity in neurofibromatosis. JBJS 1979, 61A:677-694.
4. Curtis BH et al: Neurofibromatosis with Paraplegia. JBJS 1969, 51A:843-861.
5. Yong-Hing K et al: Cervical Spine abnormalities in neurofibromatosis. JBJS 1979, 61A:695-699.
6. Sharif HS, Luckery AK: Rare skeletal manifestations in neurofibromatosis complicated with sarcoma. The Br J of Radiology 1985, 58:371-374.

Hypertension And Neurofibromatosis: Secondary Causes

JOHN F. SETARO, M.D. AND HENRY R. BLACK, M.D.

ABSTRACT– Correctable causes of hypertension in patients with neurofibromatosis include pheochromocytomas, primarily found in adults, and renovascular lesions, typically observed in children. This review describes methods of diagnosis, angiographic appearance, pathologic characteristics, and optimal treatment in this group of patients.

Introduction

In general, secondary causes for hypertension are rare and are found in as little as 5% of the hypertensive population. In fact, not only are most patients with neurofibromatosis (von Recklinghausen's disease) normotensive, but many with hypertension have essential hypertension.[1,2] Yet secondary etiologies of hypertension do appear in this group of patients, particularly pheochromocytoma and renal artery stenosis, and are reasonably common. It is therefore incumbent upon physicians taking care of these patients to be aware of these diseases and to diagnose and properly treat them.

Interestingly, these two diagnoses tend to be sharply segregated according to age. Pheochromocytomas are hardly ever seen in young children with neurofibromatosis.[2] Tilford found that only three out of 25 hypertensives with neurofibromatosis 18 years of age or less had pheochromocytomas, while all the other 22 had renal artery lesions.[3] Fifty-four of 62 patients over 18 had pheochromocytomas and only eight had renal artery anomalies. A series published by Kalff demonstrated a similar predilection among younger patients for arterial pathology. Of 18 hypertensives with neurofibromatosis, the ten patients who had pheochromocytomas were older (age 15-62), while two who had stenotic renal arteries or abdominal aortic coarctation were the youngest patients in the series. Renal artery stenosis, abdominal aortic coarctation and renal artery aneurysm, comprise a triad of abnormalities frequently seen in young hypertensives with neurofibromatosis.[4]

Pheochromocytoma

In 1910 Suzuki described the first case of a patient with both a pheochromocytoma and neurofibromatosis.[5] Since that time scores of case reports have confirmed the association, but it is generally agreed that pheochromocytomas occur in less than one percent of patients with neurofibromatosis.[6] In a large Mayo Clinic series, only three of 600 neurofibromatosis patients had pheochromocytomas (0.5%), but of the 132 patients with the tumor, three had concurrent neurofibromatosis (2.3%).[7] Davis found 203 pheochromocytoma patients in the literature of whom ten (5%) had neurofibromatosis.[8] In an autopsy series, Schlegel discovered 23 cases of pheochromocytoma and 15 cases of neurofibromatosis in a population of 25,274 subjects. Two patients had both diagnoses: thus 8% of pheochromocytoma patients had neurofibromatosis and 13% of neurofibromatosis patients had a pheochromocytoma.[6]

Pheochromocytomas associated with neurofibromatosis tend to occur more frequently in the left adrenal gland.[6,9] No extra-adrenal pheochromocytomas have been reported in any series.[4] There is more neurofibromatous involvement of the abdominal viscera and retroperitoneum in patients with both neurofibromatosis and pheochromocytoma than in those with neurofibromatosis alone.[4] Symptoms and general physical findings related to the tumor are identical in patients with pheochromocytoma and neurofibromatosis when compared to those with pheochromocytoma alone.

Speculation concerning the link between these two rare pathologic entities centers upon the common embryologic origin of involved tissues from the primitive ectoderm.[10] Interest also has focused upon the role of nerve growth stimulating factor, known to be abnormally high in the serum of neurofibromatosis patients.[11] Experimental administration of this factor has been shown to cause an enlargement of sympathetic ganglia, though no similar effect on chromaffin cells has yet been shown.[6,12]

Catecholamine-secreting tumors in patients with neurofibromatosis have been found to produce epinephrine as well as norepinephrine, and standard imaging methods such as computerized tomography, magnetic resonance imaging and metaiodobenzyl-guanidine[13]-iodine scintigraphy are effective diagnostic tools in patients with both

---

JOHN F. SETARO, M.D., Winchester Hypertension Foundation Fellow, Section of Cardiology, Yale University School of Medicine and Yale-New Haven Hospital. HENRY R. BLACK, M.D., Director, Hypertension Service, Department of Cardiology, Yale-New Haven Hospital; Associate Professor of Medicine, Yale University School of Medicine.

neurofibromatosis and pheochromocytoma. Microscopic pathology is also typical for pheochromocytoma and no heightened incidence of malignancy has been detected in patients with both diseases. Finally, surgical excision of the catechol-secreting mass generally results in a return to normal blood pressure.[4]

Evidence for pheochromocytoma has been sought in the setting of the other neurocutaneous syndromes: encephalotrigeminal angiomatosis (Sturge-Weber syndrome), retinal and cerebellar angiomatosis (von Hippel-Lindau disease), and tuberous sclerosis (Bourneville's disease). Glushien in 1953 recorded two cases of pheochromocytoma with von Hippel-Lindau disease, and Chapman added two more in 1959.[9,10] No cases of Sturge-Weber or Bourneville's disease and pheochromocytoma have yet been reported.

It is advisable, then, to measure 24-hour urine catecholamine levels in hypertensive patients with neurofibromatosis. If this study is normal, especially in hypertensive children or adolescents, strong consideration should be given to investigating the renal arteries with arteriography. However, in patients with neurofibromatosis, urinary norepinephrine levels may be high even though no pheochromocytoma is present. This phenomenon is seen in patients with cervical neurofibromata. Riccardi describes two such patients in whom all other diagnostic studies including computerized tomography of the abdomen, abdominal arteriography, and adrenal vein sampling for catecholamines were negative.[2] Long term followup of these patients is not available.

Renal Artery Lesions

Most cases of arterial anomalies found in neurofibromatosis patients are discovered in those less than 18 years of age. Though renal artery lesions occur in less than 1% of all patients with neurofibromatosis, two of 17 hypertensive children who underwent angiography in one series had lesions suggestive of renovascular neurofibromatosis.[2] In young patients with neurofibromatosis, lesions primarily take the form of proximal renal artery stenoses. Some have renal artery aneurysms and coarctation of the abdominal aorta as well. All of these anomalies occur in the absence of generalized arterial disease.[13] The typical angiographic appearance includes renal artery stenosis, usually in the first centimeter of the vessel. Total occlusion may be seen, or the stenosis may be gently scalloped in appearance.[14] Coarctation, when present, gives the appearance of a long segment of smooth narrowing in the abdominal aorta. Other branches, especially the mesenteric arteries, may also be stenotic.[13] These lesions are thought to be twice as common in males with neurofibromatosis as in females.[15]

In hypertensive children with renal artery stenoses, the differential diagnosis is limited to three entities: neurofibromatosis, compression by muscular bands arising from the diaphragm, and intimal fibromuscular dysplasia. Establishing a diagnosis may be difficult because characteristic skin findings of neurofibromatosis often will not appear until adolescence. Yet the angiographic appearance of proximal stenoses, especially when abdominal coarctation and renal artery aneurysms are seen also, may be quite specific for renovascular neurofibromatosis.

In 1985 Elias, et al., reviewed all fifty cases of neurofibromatosis and hypertensive renovascular disease reported in the literature.[16] Patients ranged in age from one to 18 years, and blood pressures were as low as 140/95 mmHg to a maximum of 270/220 mmHg. Standard diagnostic procedures were not always helpful. Intravenous pyelograms were normal in 54%. In ten patients with unilateral disease in whom selective renal vein renins were taken, all lateralized appropriately but 12 with bilateral disease showed varying degrees of elevation on both sides. At angiography, 76% of lesions were on the left in those with unilateral disease. A majority of patients had more than one arterial anomaly, including renal artery aneurysms, abdominal aorta coarctations, and celiac or mesenteric stenoses. A coarctation of the thoracic aorta in a hypertensive with neurofibromatosis has been cited recently as well.

The vascular pathology of lesions found in hypertensives with neurofibromatosis was first described by Reubi in 1944.[18] He found intimal hyperplasia of 50 to 400 micrometer arterioles, nodular-aneurysmatic involvement with medial and elastic fragmentation of 0.5-1 mm arterioles, and the periarterial nodular type of lesion, with the occurrence of adventitial nodules in 100-700 micrometer arterioles. Feyrter refined this characterization with the description of the advanced intimal type of lesion with fibrosis of intima and media, and the epithelioid type with transmural cellular proliferation.[19] The origin of these derangements is not clear. Reubi believed them to be the consequence of a general proliferation of somatic soft tissues, while Feyrter thought them to represent a true neoplasia of neural tissue within the arterial wall. Surgical pathology of excised renal artery segments showed that 74% of patients had more than one anomaly. Intimal fibrosis, medial fibrosis with atrophy, and fragmentation of the internal lamina elastica were most commonly witnessed. Adventitial fibrosis was evident in 25%, and pure intimal hyperplasia was not detected in any renal artery specimen. Six patients had neurofibromatous tissue about the artery causing extramural compression. Renal biopsies were obtained and six of seven were abnormal. Intimal thickening, hyalinized glomeruli, arteriolar sclerosis, necrosis, and intimal proliferation, medial hypertrophy and fragmentation of the internal elastic lamina were prominent histologic features.[16] The role of small vessel disease within the kidney has not been clearly elucidated. In addition, early authors experienced difficulty in distinguishing a neurofibromatosis-related vasculopathy from an inflammatory arteritis or periarteritis nodosa. It seems clear now, however, that the distinction can be made by the absence, in the former condition, of lymphocytes and polymorphonuclear cells from the vessel wall.[16]

Elias also reviewed the treatment results for hypertensives with renovascular neurofibromatosis. Of 49 patients in whom information was available, eight were treated medically. Five had balloon angioplasty attempted but results were universally poor and these patients were sent to surgery. Including the angioplasty failures, the surgical group numbered 41. Operations designed to reperfuse the affected kidney included resection of the stenosis with arterial re-implantation, vein graft bypass, synthetic graft bypass, and spleno-renal anastomosis.

In those treated medically, six of eight failed to improve. Of surgical patients, 16 (40%) ultimately required nephrectomy for blood pressure control. Overall, 63% of surgically treated patients, including nephrectomies as well as successful revascularizations were cured, 33% were improved, and the remainder failed.

We agree that surgical reconstruction or bypass would appear to be the treatment of choice for renal arterial lesions in patients with neurofibromatosis. However two recent case reports suggest that non-surgical therapy may have a place.[20,21] The first concerns a 34 year male with neurofibromatosis who refused surgical repair of his bilateral proximal renal artery stenoses, abdominal aortic coarctation, and marked bilateral renal artery saccular aneurysms. He was treated with captopril 75 mg. per day and had an excellent response that has been sustained for 18 months.[20]

The second case suggests that angioplasty can work. Baxi et al report a successful angioplasty performed on a 19-year-old female with neurofibromatosis and hypertension. Angiography showed multiple narrowings of the proximal left renal artery, with lateralization of renal vein renin samples. A 43 mm Hg gradient was relieved by the procedure, renal vein renins normalized, and the patient became normotensive and remained so at three month followup.[21] Of course, in cases of severe arterial disease whether or not neurofibromatosis is present, a failure of either medical or surgical therapy can be ascribed to diffuse atherosclerosis, microvascular renal lesions, or chronic renal insufficiency on the based on years of uncontrolled hypertension. Nevertheless, arteriography should be performed on young hypertensives with neurofibromatosis. Conversely, the youthful hypertensive with renal artery abnormalities should be examined with great care for stigmata of neurofibromatosis, many of which do not appear until after puberty.

Conclusion

In summary, patients with neurofibromatosis and hypertension should be investigated thoroughly for secondary causes of hypertension. Twenty-four hour urine collections for catecholamines serve as an excellent non-invasive method for detecting pheochromocytomas. Their location can be confirmed by a variety of imaging modalities, including computerized tomography, scintigraphy, and magnetic resonance imaging. If these tests are unrevealing, performing renal arteriography would constitute a sound strategy for excluding surgically remediable renal arterial lesions, especially in younger patients with hypertension and neurofibromatosis.

REFERENCES

1. Flynn MP, Buchanan JB: Neurofibromatosis, Hypertension, and Renal Artery Aneurysms. S Med J 1980, 73:618-620.
2. Riccardi VM: Von Recklinghausen Neurofibromatosis. N Engl J Med 1981, 305:1617-1627.
3. Tilford DL, Kelsch RC: Renal Artery Stenosis in Childhood Neurofibromatosis. Am J Dis Child 1973, 126:665-668.
4. Kalff V, Shapiro B, Lloyd R, Sisson JC, Holland K, Nakajo M, Beierwaltes WH: The Spectrum of Pheochromocytoma in Hypertensive Patients with Neurofibromatosis. Arch Intern Med 1982, 2092-2098.
5. Suzuki S: Über zwei Tumoren aus Nebennierenmark-gewebe. Berlin Klin Wschr 1910, 47:1623.
6. Manger WM, Gifford RW: Pheochromocytoma. Springer-Verlag, New York 1977, 132-134.
7. Lynch JD, Sheps SG, Bernatz PE, ReMine WH, Harrison EG: Neurofibromatosis and Hypertension: Due to Pheochromocytoma or Renal Artery Stenosis. Minnesota Medicine 1972, 55:25-31.
8. Davis FW, Hull JG, Vardell JC: Pheochromocytoma with Neurofibromatosis. Am J Med 1950, 8:131-135.
9. Glushien AS, Mansuy MM, Littman DS. Pheochromocytoma: Its Relationship to the Neurocutaneous Syndromes. Am J Med 1953, 14:318-327.
10. Chapman RC, Kemp VE, Taliaferro I: Pheochromocytoma Associated with Multiple Neurofibromatosis and Intracranial Hemangioma. Am J Med 1959, 26:883-890.
11. Schenkein I, Bueker ED, Helson L, Axelrod F, Dancis J: Increased Nerve-Growth Stimulating Activity in Disseminated Neurofibromatosis. N Engl J Med 1974, 290:613-614.
12. Levi-Montalcini R, Booker B: Excessive Growth of the Sympathetic Ganglia Evoked by a Protein Isolated from Mouse Salivary Glands. Proc Nat Acad Sci 1960, 46:373-384.
13. Stanley JC, Ernst CB, Fry WJ: Renovascular Hypertension. Philadelphia, WB Saunders Company 1984, 192-193.
14. Allan TNK, Davies ER: Neurofibromatosis of the Renal Artery. Br J Radiol 1970, 43:906-908.
15. Case Records of the Massachusetts General Hospital: Case 19-1986 N Engl J Med 1986, 314:1304-1311.
16. Elias DL, Ricketts RR, Smith RB: Renovascular Hypertension Complicating Neurofibromatosis. Am Surg 1985, 51:97-106.
17. Donaldson MC, Ellison LH, Ramsby GR: Hypertension from Isolated Thoracic Aortic Coarctation Associated with Neurofibromatosis. J Ped Surg 1985, 20:169-171.
18. Reubi F: Neurofibromatosis et Lesions Vasculaires. Schweiz Med Wochenschr 1945, 75:463-465.
19. Feyrter F: Über Neurome und Neurofibromatose nach Untersuchungen am Menschlichen (Magen-darmschlauch) Wien Med Wochenschr 1948, 98:287-290.
20. Tenschert W, Holdener EE, Haertel MM, Senn H, Vetter W: Secondary Hypertension and Neurofibromatosis: Bilateral Renal Artery Stenosis and Coarctation of the Abdominal Aorta. Klin Wochenschr 1985, 63:593-596.
21. Baxi R, Epstein HY, Abitbol C: Percutaneous Transluminal Renal Artery Angioplasty in Hypertension Associated with Neurofibromatosis. Radiology 1981, 139:583-584.

Diagnostic Imaging in Neurofibromatosis

NANCY S. ROSENFIELD, M.D. AND ARTHUR T. ROSENFIELD, M.D.

ABSTRACT–Several recent innovations in imaging can be applied to neurofibromatosis (NF) patients. Leg length can be followed using the scout view of the computed tomography (CT) scanner with a significant reduction in radiation exposure. Central nervous system and musculoskeletal lesions can be optimally identified using CT and/or magnetic resonance imaging (MRI). The latter has many advantages including coronal and sagittal imaging, the avoidance of imaging radiation and the absence of interferance from bone. Using Technetium 99m DTPA, radioisotope scanning can identify neurofibromas. Percutaneous aspiration biopsies can be safely performed using sonographic or CT guidance.

Since so many different organ systems can be affected in a patient with neurofibromatosis (NF), different diagnostic imaging techniques will be useful for each. Some recent innovations in imaging modalities are very beneficial to the patient with NF.

Skeletal Problems

Scoliosis

Curvatures of the spine are best evaluated by conventional radiographs. The standard scoliosis film is a standing PA radiograph from the iliac crests up to the level of T-4. It has been shown that taking this film in the PA projection, rather than the conventional AP projection, results in a significant reduction in the radiation exposure to the female breast.[1] Lateral and bending views of the spine may also assist the orthopedic surgeon in the evaluation of scoliosis.

Leg Length Discrepancy

In contrast to the time-consuming and tedious orthoroentgenographic technique, utilizing the scout film view of the CT scanner results in a significant decrease in radiation exposure, and allows for direct calculation of the length of the limbs. This is a signficant advance.[2]

Pseudoarthrosis

Congenital pseudoarthroses are well seen on standard plain radiographic films.

Central Nervous System Problems

The central nervous system has traditionally been evaluated by invasive techniques such as arteriography, myelography, and pneumoencephalography. The introduction of computed tomography enables visualization of the brain without direct invasive technique. CT scanning also allows excellent visualization of the orbits and the optic nerves, which may be involved in optic gliomas in patients with NF[3,4] (See Figure 1 in article by Gillespie and Shaywitz in this issue). Similarly, one can evaluate the acoustic canals for evidence of acoustic neuromas, and the sphenoid bones for congenital anomalies.[5]

The introduction of magnetic resonance imaging (MRI) is another breakthrough that allows excellent visualization of the central nervous system, without any radiation or added contrast material. Since there is no signal obtained from bone, bony areas of the skull which might interfere with visualization of the optic or acoustic region on the CT scan are eliminated. Therefore, the MRI is an excellent modality with which to visualize the hypothalamic and optic pathways as well as the acoustic region.[6]

Spine MRI allows excellent visualization of the spinal cord and nerve roots. Therefore, neurofibromas can be studied both within and outside the spinal canal.

Musculoskeletal System

CT and MRI are also valuable techniques for studying the musculoskeletal system. Soft tissue plexiform neurofibromas may be shown very well on MRI scans, which have the advantage of providing sagittal and coronal as well as axial views of the area in question (Figure I).[7-9] These techniques may also allow identification of those tumors undergoing malignant degeneration.[10,11]

Percutaneous fine needle aspiration under computed tomographic or ultrasonographic guidance is a relatively safe technique to document primary or secondary malignancy. This procedure can be done as an out-patient and can be used for pulmonary, abdominal, soft tissue, and bone lesions. Both primary neoplastic disease and recurrent tumor can be identified without the need for surgery. A "skinny" 20 or 22 gauge needle is used to aspirate the

---

NANCY S. ROSENFIELD, M.D., Associate Professor of Diagnostic Radiology and Pediatrics, Yale University School of Medicine; Chief, Section of Pediatric Radiology, Yale-New Haven Hospital. ARTHUR T. ROSENFIELD, M.D., Professor of Diagnostic Radiology, Yale University School of Medicine; Chief, Section of Computed Tomography, Yale-New Haven Hospital.

mass and both cytology and histology can be obtained. CT and ultrasound are used to determine the location of the mass as well as its depth and its relationship to other structures so that the safest needle path may be used. Although an attempt is made to avoid major structures, there is little risk in traversing major vessels including the aorta and vena cava or structures such as the liver, spleen, kidney, and bowel. In a survey of 51 consecutive CT-guided percutaneous fine needle aspiration biopsies performed on 46 patients over 15 months at the Yale-New Haven Hospital, an accuracy rate of 95% was obtained without any major complications.[12] Cytologies were done to identify a primary or secondary malignancy in the abdomen, pelvis, retroperitoneum, bone, or paraspinal region. Fifty of 51 biopsies yielded adequate cytologic material. No false-positive studies were obtained while 29 studies were true-positive. Of the 14 negative cases, 12 were true-negative.[12] Thus, a positive biospy can obviate the need for more invasive techniques to make a specific diagnosis.

The availability of imaging-guided percutaneous fine needle aspiration biopsy can be very important for patients with neurofibromatosis who developed a primary malignancy and subsequently present with a new mass. Percutaneous aspiration can verify recurrent tumor, even in deep retroperitoneal or abdominal locations, frequently leading to chemo- or radiation therapy without additional surgery.

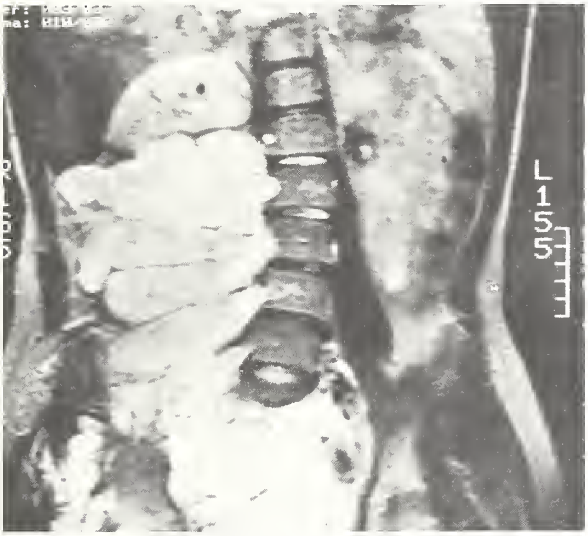


Figure 1

14-year old boy with NF and a large plexiform neurofibroma extending from the upper abdomen to the lower thigh.

Figure 1A

Coronal view of the abdomen from the MRI scan shows the extensive tumor on the right.

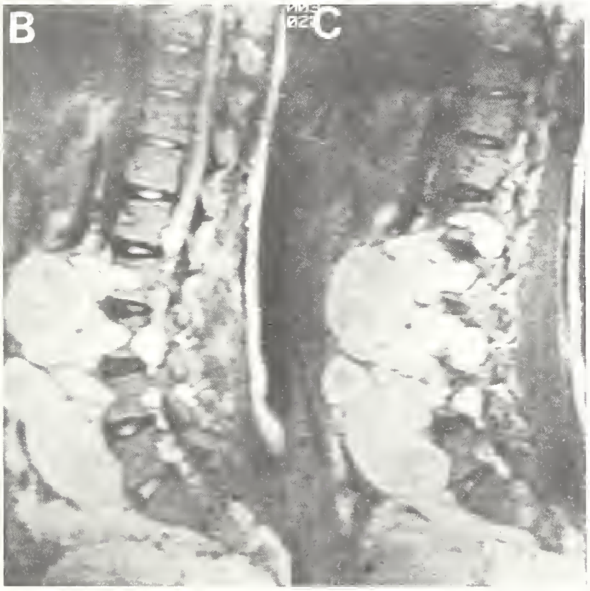


Figure 1B & C

Sagittal MRI views show the tumor extending through the neural foramina.

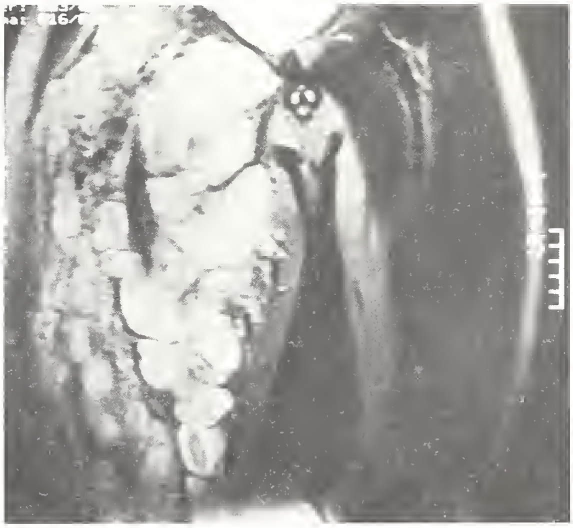


Figure 1D

Coronal MRI view of the thigh showing distal extent of the tumor.

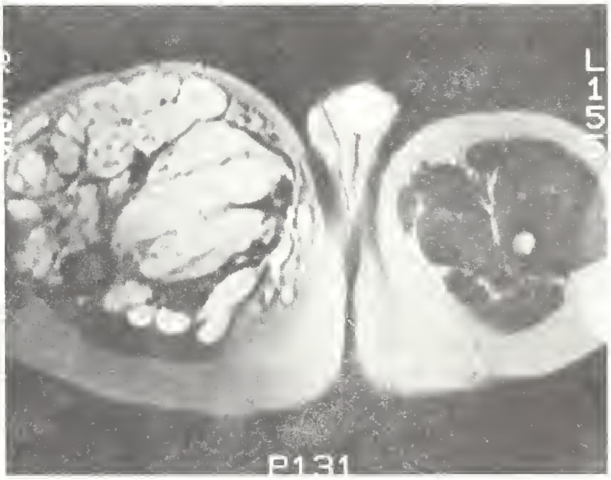


Figure 1E

Axial MRI view of the thigh showing discrete tumor bundles in the large mass on the right. The left leg is normal.

Nuclear Medicine Studies

Recently, a nuclear medicine technique has been described in which soft tissue neurofibromas may be identified. The patients are scanned with Technetium-99M DTPA, which was serendipitously discovered to localize in neurofibromas. The mechanism of the uptake of this isotope in these tumors is not known. In one series of 28 neurofibromas in 16 patients, the smallest lesion detected with this technique was 1.5 cm in diameter. Six clinically unsuspected lesions were detected with this technique.[13]

The Vascular System

Some patients with neurofibromatosis have arterial occlusions or stenoses. These have been reported in the vessels of the brain, kidney, aorta, and other peripheral arteries.[14] An aortic or a renal artery stenosis may be the cause of hypertension (Figure 2). The effect of arterial narrowing in the cerebral circulation may be demonstrated by either CT or MRI.[6]

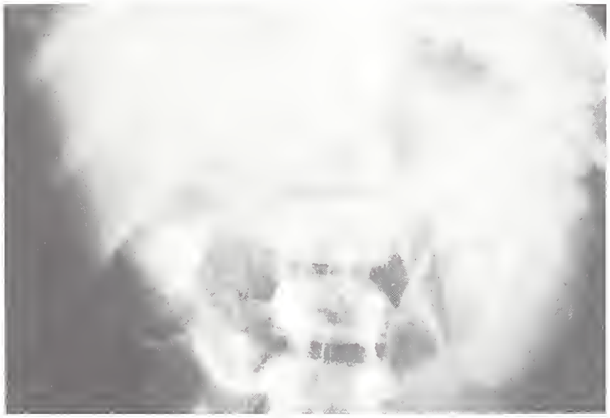


Figure 2

7-year old girl with NF and hypertension.

Figure 2A

Excretory urography shows no evidence of renal function on the right.

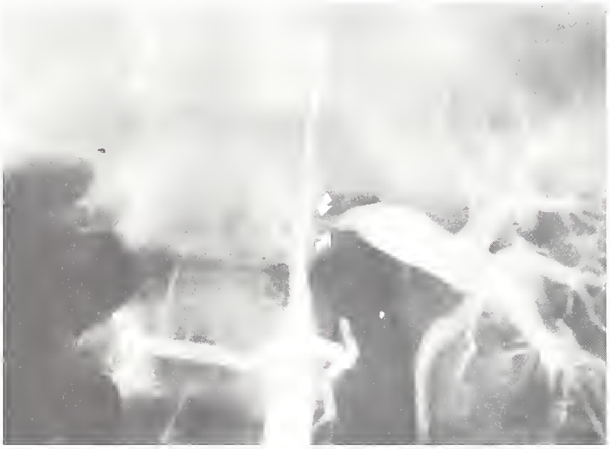


Figure 2B

Renal arteriogram. The right renal artery is not seen. Stenosis of the left renal artery at its origin is seen (arrows).

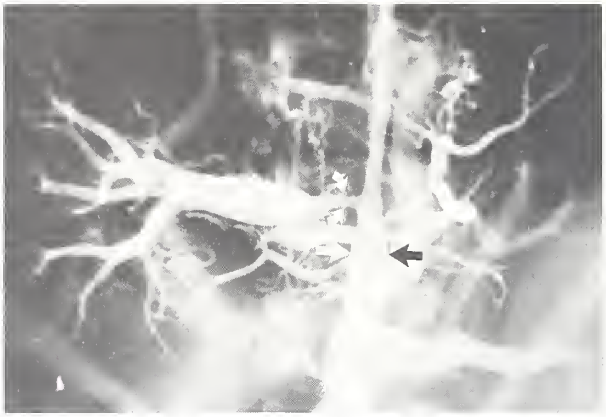


Figure 2C

Aortogram. Narrowing of the abdominal aorta (straight arrows) is seen as well as the left renal artery stenosis (curved arrows).

Conclusion

Although many of the problems seen in patients with NF are diagnosable with traditional imaging modalities, the new modalities of CT and MRI have been extremely beneficial to these patients and their physicians.

REFERENCES

1. Nash CL, Gregg EC, Brown RH, Pillai K: Risks of exposure to x-rays in patients undergoing long-term treatment for scoliosis. J Bone and Joint Surg 1979, 61-A:371-373.
2. Aitken AGF, Flodmark O, Newman DE, et al: Leg length determination by CT digital radiography. AJR 1985, 144:613-615.
3. Byrd SE, Harwood-Nash DC, Fitz CR, et al: Computed tomography of intraorbital optic nerve gliomas in children. Radiology 1978, 129:73-78.
4. Louie GL, Osborne DR, Kirks DR: Envolvement of posterior visual pathways by optic nerve gliomas. Pediatric Radiol 1986, 16:271-274.
5. Zimmerman RA, Bilaniuk LT, Metzger RA, et al: Computed tomography of orbital-facial neurofibromatosis. Radiology 1983, 146:113-116.
6. Cohen MD: Clinical utility of magnetic resonance imaging in pediatrics. AJDC 1986, 140:947-956.
7. Kumar AJ, Kuhajda FP, Martinez CR, et al: Computed tomography of extracranial nerve sheath tumors with pathological correlation. J Comput Asst Tomogr 1983, 7(5):857-865.
8. Daneman A, Mancer K and Sonley M: CT appearance of thickened nerves in neurofibromatosis. AJR 1983, 14:899-900.
9. Biondetti PR, Vigo M, Fiore D, et al: CT appearance of generalized von Recklinghausen neurofibromatosis. J Comput Asst Tomogr 1983, 7(5):866-869.
10. Coleman BG, Arger PH, Dalinka MK, et al: CT of sarcomatous degeneration in neurofibromatosis. AJR 1983, 140:383-387.
11. Woolfitt RA, Brantly PN and Neal RK: CT demonstration of a neurofibrosarcoma causing femoral neuropathy. J Comput Asst Tomogr 1982, 6(5):1013-1014.
12. Hammers LW, McCarthy S, Williams H, et al: Computed tomographic (CT) guided percutaneous fine-needle aspiration biopsy: The Yale experience. Yale J of Biology and Medicine 1986, 59:425-434.
13. Mandell GA, Herrick WC, Harcke HT, et al: Neurofibromas: Location by scanning with Tc-99m DTPA; Work in progress: Radiology 1985, 157:803-806.
14. Leone RG, Schatzki SC and Wolpow ER: Neurofibromatosis with extensive intracranial arterial occlusive disease. AJNR 1982, 3:572-576.

Rheumatic Fever: Recent Outbreaks of an Old Disease

MILTON MARKOWITZ, M.D. AND MICHAEL A. GERBER, M.D.

The incidence of rheumatic fever in the United States has fallen so dramatically that many young physicians have never seen a patient with this disease.[1] However, during the past two years, reports have been appearing which describe an apparent resurgence in its incidence.[2,3] The size of one of these outbreaks is especially striking.[2] In addition to these published reports, the authors have become aware of smaller groups of patients in different parts of the country at hospitals where rheumatic fever had rarely been encountered in recent years.

During this period of declining incidence of rheumatic fever, the clinical severity of the acute attack and its predilection for producing heart disease declined as well.[4] However, in the reports referred to above, an unusually large percentage of patients had carditis, and many were in congestive heart failure. Thus, not only are we witnessing an apparent resurgence of rheumatic fever, but, in addition, the reappearance of the classical, severe form of this disease familiar to many older clinicians.

We propose to describe in this review our impressions of why the incidence of rheumatic fever had declined in this country as well as why it now appears to be increasing. We shall consider each of these questions separately by examining the changes which may have occurred in the three elements that interact in the pathogenesis of rheumatic fever: the environment, the host, and the etiologic agent, group A beta-hemolytic streptococcus (GABHS).

Decline in Rheumatic Fever

Rheumatic fever was the scourge of children during the last century, reaching an annual incidence rate of 250 per 100,000 population in Denmark, a country with a remarkable 100 years of incidence data.[5] The incidence of this disease began to decline slowly after the turn of the century, but children's hospitals in London still had wards filled with rheumatic fever patients in 1920.[6] Rheumatic fever remained one of the most common causes of chronic disease in school children during the 1930s. For example, there were 322 admissions for rheumatic fever to the Grace-New Haven Hospital between 1933-1938.[7] Recognition of the importance of this disease in our country led to the establishment between 1925 and 1935 of hospitals specifically for the care of rheumatic patients. One of the authors (MM) was a house officer in 1946 in a 110 bed rheumatic fever hospital at which there was often a waiting list for admission.

The decline in the incidence of rheumatic fever became more pronounced in Western European countries after World War II, falling to an annual incidence of 10 per 100,000 in Denmark by 1962.[5] However, rheumatic fever remained a significant problem in the United States during this period.[8] For example, between 1951-1961, there were 258 rheumatic fever admissions to The Johns Hopkins Children's Hospital[9] (Figure 1). Additional evidence that rheumatic fever was still prevalent in this country came from a population based study in Baltimore between 1960-1964, which revealed an incidence of 26 per 100,000 in the 5-19 year-old-age group.[10] A marked acceleration in the decline in incidence in the United States began in the late 1960s. By 1980 an annual incidence of 0.5 per 100,000 was recorded in Baltimore, a fifty-fold decline from the incidence twenty years earlier.[1] What changes may have occurred in the environment, in the host or in the GABHS to account for this virtual disappearance of rheumatic fever?

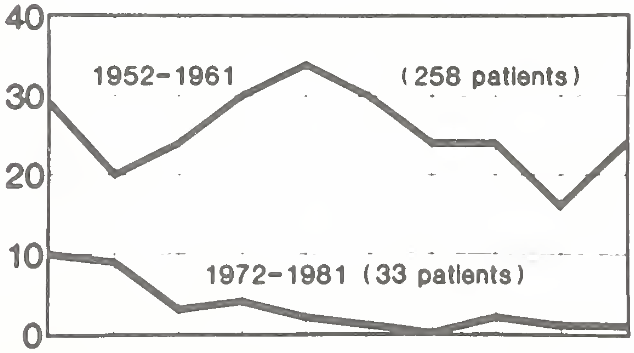


Figure 1

Comparison of number of admissions to the Children's Service, The Johns Hopkins Hospital, 1952 to 1961, and 1972 to 1981 (From Markowitz M, Rheumatic Fever in the Eighties, Ped Clinics North America 1986, 33:1142; with permission).

MILTON MARKOWITZ, M.D., Professor of Pediatrics and Associate Dean for Student Affairs and MICHAEL A. GERBER, M.D., Associate Professor of Pediatrics, Division of Infectious Diseases, both at University of Connecticut School of Medicine, Farmington, CT.

Environment—The incidence of rheumatic fever has long been considered to be closely related to environmental factors and in particular, socioeconomic conditions. The concept of "social incidence" was most clearly stated by Glover in 1930.[12] "No disease has a clearer cut 'social incidence' than rheumatic fever which falls perhaps thirty times more frequently upon poorer children of the industrial town as upon children of the well-to-do. The incidence increases directly with poverty, malnutrition, over-crowding and bad housing." Of this group of related factors, crowding is the most critical because of the greater likelihood of transmission of GABHS in a crowded environment.

The slow but steadily declining incidence of rheumatic fever in Western countries during the pre-antibiotic period is generally attributed to improved living conditions, a belief which is held by the authors as well. However, with the availability of antibiotics, the decline in incidence accelerated, with the sharpest fall occurring, as noted previously, during the last 20 years. There were two major contributing factors for the precipitous decline in incidence during this most recent period: medical intervention with antibiotics capable of preventing both initial and recurrent attacks of rheumatic fever and improved accessibility to health care.

The ability to prevent the initial attack of rheumatic fever by adequately treating the preceding episode of streptococcal pharyngitis with antibiotics was demonstrated in 1950.[13] However, a considerable amount of time passed before many physicians began to obtain throat cultures and to treat proven streptococcal infections with the required 10-day course of antibiotics. The marked rise in the use of throat cultures by Connecticut physicians in the late 1960s indicated that considerable attention was now being paid to identifying and treating streptococcal infections[9] (Figure 2). However, prior to 1965, this form of intervention was not available to many of the children in this country who were at greatest risk for developing rheumatic fever. The federal Medicaid program enacted in 1965 contributed greatly to improved access to health care for children of low-income families. Since the introduction of Medicaid, the average number of annual health-related visits for indigent children almost equaled that of more affluent children.[14]

Host—It is difficult to identify specific host factors responsible for the declining incidence of rheumatic fever other than those related to environmental changes. While poor nutrition is often associated with poverty and may predispose to infections, there is no evidence to indicate a specific predisposing dietary deficiency for rheumatic fever. In any case, host changes related to poverty cannot alone account for the precipitous fall in the attack rate of rheumatic fever during the past two decades. There are unfortunately still many children living in poverty in this country, and yet they do not appear to be developing rheumatic fever.

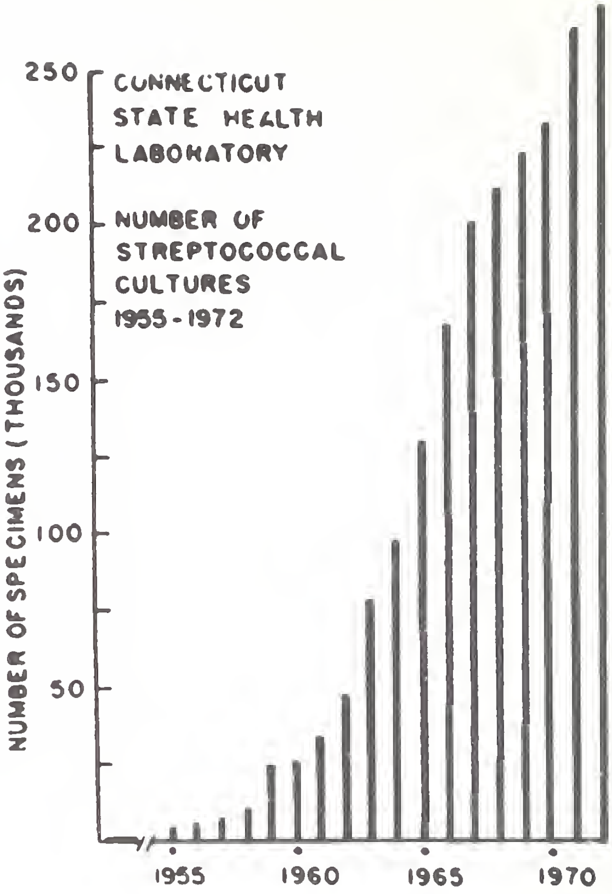


Figure 2

The marked rise in the number of throat cultures from 1955 to 1972, processed by the Connecticut State Health Laboratory (Data courtesy J.J. Redys).

There is a strong suspicion that there is an inherited susceptibility to rheumatic fever, but no specific genetic marker has yet been identified. An association of a B-cell alloantigen with susceptibility to rheumatic fever has been reported, but this observation needs additional corroboration.[15] However, it is unlikely that an alteration in the genetic make-up of the population could have occurred in the relatively brief period of time during which the incidence of rheumatic fever declined so dramatically.

Etiologic Agent—Another factor to consider is the possibility that a change has occurred in the GABHS. It is possible that the prevalence of infections caused by this organism has declined, that the virulence of this organism has diminished, or that the "rheumatogenic" strains of GABHS have become less common.

Physicians in practice continue to see many children with pharyngitis, 15 to 30 percent of whom have a positive culture for GABHS. Longitudinal studies have shown that throat culture positivity rates have not changed significantly over the past 30 years. Therefore, a decline in the incidence of streptococcal infections does not appear to account for the decline in rheumatic fever in recent years.[16]

In the past, the virulence of group A streptococci has been defined in a number of different ways. One way to define it is in terms of the clinical spectrum of streptococcal pharyngitis. Many older clinicians would agree that streptococcal infections, including scarlet fever, are generally milder nowadays than in the past. However, it is not clear that there is a correlation between clinical severity of a streptococcal infection and the risk of subsequently developing rheumatic fever. Evidence that there is no correlation is suggested by the fact that at least one third of rheumatic fever patients give no history of a preceding symptomatic pharyngitis.[17]

Another more scientific way of defining virulence is in terms of sero-typeability of GABHS. M protein is an important constituent of the streptococcal cell wall and is the main determinant of the virulence of this organism. M protein is one antigen by which the serotype of the GABHS is determined. Therefore, there appears to be a close relationship between virulence and M typeability. A study of the percentage of strains of GABHS that were typeable over the past two decades in Rochester showed no significant change.[18] Thus, at least by this measure, there is no evidence that the virulence of group A streptococci has diminished.

It is difficult to ascertain whether changes in the frequency of so-called "rheumatogenic" serotypes of GABHS may have accounted for the decline in the incidence of rheumatic fever. In fact, the question of whether rheumatogenic serotypes exist at all remains unsettled. The authors are aware of only one longitudinal study of M serotypes in a community during the period of declining incidence of rheumatic fever.[18] While this study found that one of the possible rheumatogenic serotypes, M type 5, virtually disappeared from the community, it is not certain whether this finding was coincidental or bore a relationship to the declining incidence of rheumatic fever during the same period.

Resurgence of Rheumatic Fever

Over the past two years, outbreaks of acute rheumatic fever in Utah, Pennsylvania, and Ohio, as well as in other areas of the country, suggest that we may be witnessing a resurgence of this disease. Physicians in Salt Lake City recently reported seeing 74 patients with acute rheumatic fever between January 1985 and June 1986.[2] This represents an age-adjusted incidence in Salt Lake County of 18 per 100,000 which is nearly an eight fold increase over the incidence during the last decade. The patients all fulfilled the modified Jones Criteria and many had the classical, severe form of rheumatic fever—72% had carditis confirmed by auscultation, 19% of the patients with carditis had congestive heart failure, and two patients required prosthetic mitral valve replacement. In addition, subcutaneous nodules and erythema marginatum, which are almost never seen any more in this country, were present in six (8%) and two (3%), respectively, of these patients. Similarly, physicians in Pittsburgh recently reported seeing eight cases of acute rheumatic fever in the past nine months.[3] These patients all fulfilled the modified Jones Criteria and many had the classical, severe form of rheumatic fever—61% had carditis.

Environment—As noted earlier, the incidence of rheumatic fever has long been considered closely related to environmental factors. Therefore, this apparent resurgence in rheumatic fever might be attributable to changes in the environment. However, in contrast to earlier reports of rheumatic fever in this country involving primarily poor, urban Blacks, the majority of the patients in both the Utah and Pittsburgh outbreaks were middle-class, suburban and rural Whites. These patients had good medical insurance and ready access to medical care. However, the majority of patients in both outbreaks had no preceding episode of pharyngitis and had not sought medical care. Therefore, a lack of available medical care was not an important contributing factor to these outbreaks. In addition, the fact that the medical care received by those who sought it was appropriate, suggests that a significant change in physicians' approach to the management of streptococcal pharyngitis did not contribute to these outbreaks. Of note, is the fact that the family size of the patients in the Utah outbreak was approximately double the average for that state. Therefore, crowding may have played an important role in this outbreak as it has in many earlier outbreaks in this country.

Host—It is difficult to identify any specific host factors acounting for the resurgence of rheumatic fever. It would obviously be too short a period for genetic alterations to have contributed to this apparent increase in incidence. In addition, while improved living conditions and better nutrition are believed to have played a role in the decline of acute rheumatic fever, there is no evidence that a worsening of living conditions has played a role in its apparent resurgence. In both the Utah and Pittsburgh outbreaks, the patients came from a segment of our population that is almost universally well nourished and whose standard of living has not changed appreciably over the past 20 years.

Etiologic Agent—One is, therefore, left with the conclusion that changes in the organism itself may be responsible for the apparent resurgence in acute rheumatic fever. One possible explanation is that the frequency of GABHS pharyngitis has increased substantially in those areas experiencing outbreaks of acute rheumatic fever. However, when the investigators in Utah examined this hypothesis, they could find no evidence to support it.[2] Another possible explanation is that the strains of GABHS in the areas experiencing outbreaks of acute rheumatic fever have become more virulent. As noted earlier, one way to define virulence is in terms of the clinical spectrum of streptococcal pharyngitis as well as in terms of the incidence of non-suppurative sequelae other than acute rheumatic fever. However, in the Utah outbreak, only 20% of the patients had classical symptoms of streptococcal pharyngitis, suggesting that the clinical severity of GABHS pharyngitis has not increased. Furthermore, despite the apparent resurgence in acute rheumatic fever

Environment—The incidence of rheumatic fever has long been considered to be closely related to environmental factors and in particular, socioeconomic conditions. The concept of "social incidence" was most clearly stated by Glover in 1930.[12] "No disease has a clearer cut 'social incidence' than rheumatic fever which falls perhaps thirty times more frequently upon poorer children of the industrial town as upon children of the well-to-do. The incidence increases directly with poverty, malnutrition, over-crowding and bad housing." Of this group of related factors, crowding is the most critical because of the greater likelihood of transmission of GABHS in a crowded environment.

The slow but steadily declining incidence of rheumatic fever in Western countries during the pre-antibiotic period is generally attributed to improved living conditions, a belief which is held by the authors as well. However, with the availability of antibiotics, the decline in incidence accelerated, with the sharpest fall occurring, as noted previously, during the last 20 years. There were two major contributing factors for the precipitous decline in incidence during this most recent period: medical intervention with antibiotics capable of preventing both initial and recurrent attacks of rheumatic fever and improved accessibility to health care.

The ability to prevent the initial attack of rheumatic fever by adequately treating the preceding episode of streptococcal pharyngitis with antibiotics was demonstrated in 1950.[13] However, a considerable amount of time passed before many physicians began to obtain throat cultures and to treat proven streptococcal infections with the required 10-day course of antibiotics. The marked rise in the use of throat cultures by Connecticut physicians in the late 1960s indicated that considerable attention was now being paid to identifying and treating streptococcal infections[9] (Figure 2). However, prior to 1965, this form of intervention was not available to many of the children in this country who were at greatest risk for developing rheumatic fever. The federal Medicaid program enacted in 1965 contributed greatly to improved access to health care for children of low-income families. Since the introduction of Medicaid, the average number of annual health-related visits for indigent children almost equaled that of more affluent children.[14]

Host—It is difficult to identify specific host factors responsible for the declining incidence of rheumatic fever other than those related to environmental changes. While poor nutrition is often associated with poverty and may predispose to infections, there is no evidence to indicate a specific predisposing dietary deficiency for rheumatic fever. In any case, host changes related to poverty cannot alone account for the precipitous fall in the attack rate of rheumatic fever during the past two decades. There are unfortunately still many children living in poverty in this country, and yet they do not appear to be developing rheumatic fever.

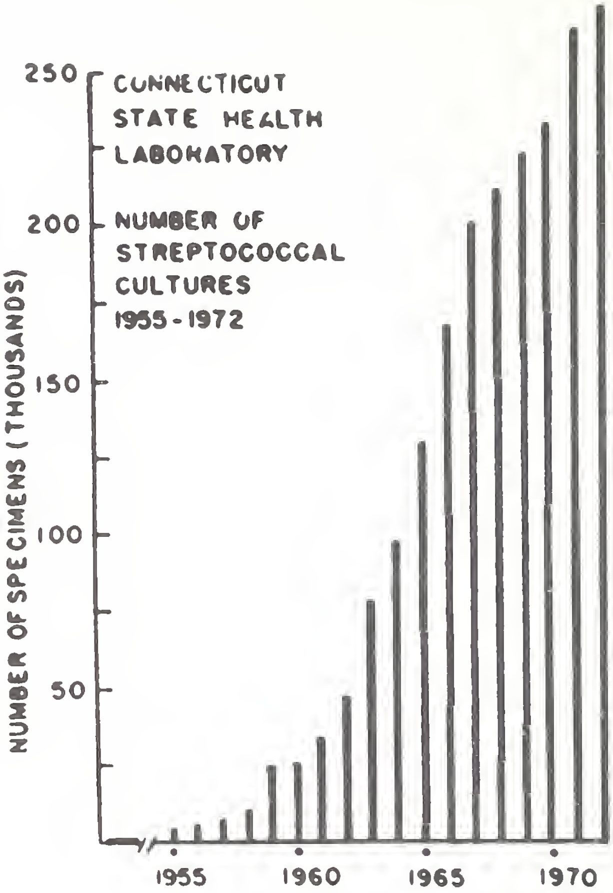


Figure 2

The marked rise in the number of throat cultures from 1955 to 1972, processed by the Connecticut State Health Laboratory (Data courtesy J.J. Redys).

There is a strong suspicion that there is an inherited susceptibility to rheumatic fever, but no specific genetic marker has yet been identified. An association of a B-cell alloantigen with susceptibility to rheumatic fever has been reported, but this observation needs additional corroboration.[15] However, it is unlikely that an alteration in the genetic make-up of the population could have occurred in the relatively brief period of time during which the incidence of rheumatic fever declined so dramatically.

Etiologic Agent—Another factor to consider is the possibility that a change has occurred in the GABHS. It is possible that the prevalence of infections caused by this organism has declined, that the virulence of this organism has diminished, or that the "rheumatogenic" strains of GABHS have become less common.

Physicians in practice continue to see many children with pharyngitis, 15 to 30 percent of whom have a positive culture for GABHS. Longitudinal studies have shown that throat culture positivity rates have not changed significantly over the past 30 years. Therefore, a decline in the incidence of streptococcal infections does not appear to account for the decline in rheumatic fever in recent years.[16]

In the past, the virulence of group A streptococci has been defined in a number of different ways. One way to define it is in terms of the clinical spectrum of streptococcal pharyngitis. Many older clinicians would agree that streptococcal infections, including scarlet fever, are generally milder nowadays than in the past. However, it is not clear that there is a correlation between clinical severity of a streptococcal infection and the risk of subsequently developing rheumatic fever. Evidence that there is no correlation is suggested by the fact that at least one third of rheumatic fever patients give no history of a preceding symptomatic pharyngitis.[17]

Another more scientific way of defining virulence is in terms of sero-typeability of GABHS. M protein is an important constituent of the streptococcal cell wall and is the main determinant of the virulence of this organism. M protein is one antigen by which the serotype of the GABHS is determined. Therefore, there appears to be a close relationship between virulence and M typeability. A study of the percentage of strains of GABHS that were typeable over the past two decades in Rochester showed no significant change.[18] Thus, at least by this measure, there is no evidence that the virulence of group A streptococci has diminished.

It is difficult to ascertain whether changes in the frequency of so-called "rheumatogenic" serotypes of GABHS may have accounted for the decline in the incidence of rheumatic fever. In fact, the question of whether rheumatogenic serotypes exist at all remains unsettled. The authors are aware of only one longitudinal study of M serotypes in a community during the period of declining incidence of rheumatic fever.[18] While this study found that one of the possible rheumatogenic serotypes, M type 5, virtually disappeared from the community, it is not certain whether this finding was coincidental or bore a relationship to the declining incidence of rheumatic fever during the same period.

Resurgence of Rheumatic Fever

Over the past two years, outbreaks of acute rheumatic fever in Utah, Pennsylvania, and Ohio, as well as in other areas of the country, suggest that we may be witnessing a resurgence of this disease. Physicians in Salt Lake City recently reported seeing 74 patients with acute rheumatic fever between January 1985 and June 1986.[2] This represents an age-adjusted incidence in Salt Lake County of 18 per 100,000 which is nearly an eight fold increase over the incidence during the last decade. The patients all fulfilled the modified Jones Criteria and many had the classical, severe form of rheumatic fever—72% had carditis confirmed by auscultation, 19% of the patients with carditis had congestive heart failure, and two patients required prosthetic mitral valve replacement. In addition, subcutaneous nodules and erythema marginatum, which are almost never seen any more in this country, were present in six (8%) and two (3%), respectively, of these patients. Similarly, physicians in Pittsburgh recently reported seeing eight cases of acute rheumatic fever in the past nine months.[3] These patients all fulfilled the modified Jones Criteria and many had the classical, severe form of rheumatic fever—61% had carditis.

Environment—As noted earlier, the incidence of rheumatic fever has long been considered closely related to environmental factors. Therefore, this apparent resurgence in rheumatic fever might be attributable to changes in the environment. However, in contrast to earlier reports of rheumatic fever in this country involving primarily poor, urban Blacks, the majority of the patients in both the Utah and Pittsburgh outbreaks were middle-class, suburban and rural Whites. These patients had good medical insurance and ready access to medical care. However, the majority of patients in both outbreaks had no preceding episode of pharyngitis and had not sought medical care. Therefore, a lack of available medical care was not an important contributing factor to these outbreaks. In addition, the fact that the medical care received by those who sought it was appropriate, suggests that a significant change in physicians' approach to the management of streptococcal pharyngitis did not contribute to these outbreaks. Of note, is the fact that the family size of the patients in the Utah outbreak was approximately double the average for that state. Therefore, crowding may have played an important role in this outbreak as it has in many earlier outbreaks in this country.

Host—It is difficult to identify any specific host factors acounting for the resurgence of rheumatic fever. It would obviously be too short a period for genetic alterations to have contributed to this apparent increase in incidence. In addition, while improved living conditions and better nutrition are believed to have played a role in the decline of acute rheumatic fever, there is no evidence that a worsening of living conditions has played a role in its apparent resurgence. In both the Utah and Pittsburgh outbreaks, the patients came from a segment of our population that is almost universally well nourished and whose standard of living has not changed appreciably over the past 20 years.

Etiologic Agent—One is, therefore, left with the conclusion that changes in the organism itself may be responsible for the apparent resurgence in acute rheumatic fever. One possible explanation is that the frequency of GABHS pharyngitis has increased substantially in those areas experiencing outbreaks of acute rheumatic fever. However, when the investigators in Utah examined this hypothesis, they could find no evidence to support it.[2] Another possible explanation is that the strains of GABHS in the areas experiencing outbreaks of acute rheumatic fever have become more virulent. As noted earlier, one way to define virulence is in terms of the clinical spectrum of streptococcal pharyngitis as well as in terms of the incidence of non-suppurative sequelae other than acute rheumatic fever. However, in the Utah outbreak, only 20% of the patients had classical symptoms of streptococcal pharyngitis, suggesting that the clinical severity of GABHS pharyngitis has not increased. Furthermore, despite the apparent resurgence in acute rheumatic fever in certain areas of this country, there has not been a concurrent increase in the incidence and severity of scarlet fever or in the incidence of poststreptococcal glomerulonephritis in these same areas. Typeability, as noted earlier, has also frequently been used as a marker of virulence of GABHS. However, the investigators in Utah were unable to demonstrate a significant increase in the percentage of isolates of GABHS that were typeable.[2]

As noted previously, it has also been suggested that the incidence of acute rheumatic fever in a particular area may be a reflection of the relative incidence of rheumatogenic strains. Preliminary data from Utah suggests that an unusually mucoid M-18 strain of GABHS may be responsible for that outbreak.[2] This is a strain which has been implicated in earlier outbreaks of acute rheumatic fever and which has been identified only infrequently in this country in recent years.[19] Therefore, it is quite possible that an increased prevalence of a rheumatogenic strain in several areas of this country has been responsible for the apparent resurgence of acute rheumatic fever.

Discussion

Historically, a number of discrete outbreaks of rheumatic fever have occurred during both the pre- and post-antibiotic eras.[20,21] These outbreaks have usually occurred in relatively closed populations—residential schools, military installations and rheumatic fever hospitals. There were two requisite conditions for these outbreaks: unusual crowding and epidemics of scarlet fever or acute pharyngitis.[12] However, not every epidemic of scarlet fever or acute pharyngitis in these crowded environments was followed by an outbreak of rheumatic fever, suggesting that some streptococcal strains were more rheumatogenic than others.[22]

After methods were developed to group and type beta-hemolytic streptococci, it was possible to study outbreaks of streptococcal infections caused by specific serotypes (M types) and to determine the potential for specific serotypes to cause rheumatic fever. A striking example of the variability in rheumatogenic potential emerged from studies of streptococcal epidemics in the late 1930s in a hospital for children convalescing from rheumatic fever. In 1939, there were eight recurrent attacks of rheumatic fever among 39 children infected with type M27, while in 1938, there were *no* recurrences among 32 highly susceptible children with type M4 streptococcal pharyngitis.[23]

Additional evidence of the variability in rheumatogenic potential arose from studies of streptococcal infections at U.S. military installations during and after World War II. In one outbreak of food-borne streptococcal pharyngitis among 300 army recruits, there were no cases of rheumatic fever, while in another outbreak of streptococcal pharyngitis and scarlet fever among 500 naval personnel, 21% developed rheumatic fever.[22,24] Further support for the association of certain serotypes with specific post-streptococcal diseases comes from countries where both rheumatic fever and glomerulonephritis occur in the same population. One study in Trinidad and another in Kuwait reported that each of these complications, although occurring concurrently in the same population, was caused by a different serotype.[25,26] Not only did these studies support the concept of specific rheumatogenic strains, but in addition, confirmed the earlier findings of specific nephritogenic strains.[27]

In contrast, Rammelkamp and his colleagues concluded that certain serotypes were no more likely than others to cause rheumatic fever. This conclusion was based on extensive studies carried out at the Warren Air Force Base, which showed a fairly constant attack rate (3%) of rheumatic fever following streptococcal infections regardless of the specific serotype involved.[27] However, the validity of this conclusion has been questioned because of the relatively small number of serotypes (types 5, 14, 18, 24) implicated in these Air Force outbreaks.[27] In fact, these same serotypes have been implicated in many of the subsequent outbreaks of rheumatic fever.[21,28]

Speculation

The outbreaks of rheumatic fever that we are currently witnessing may be, in many respects, quite similar to the sporadic outbreaks that had occurred in the past. For example, in 1962, Zimmerman and co-workers described an outbreak of rheumatic fever in an isolated, rural community in North Dakota following an explosive epidemic of an M5 strain.[29] This outbreak closely resembles the recent outbreak in Utah. The major difference between the current outbreaks and those of the past, is that in the past the sporadic outbreaks of rheumatic fever were superimposed upon a significant background level of endemic disease, while currently, the outbreaks are occurring at a time when the endemic disease has virtually disappeared. Sporadic outbreaks that may have appeared in the past as a mere blip on a substantial baseline curve, now stand out in striking relief against an empty background.

It is, therefore, interesting to speculate on the possible epidemiologic differences between endemic and epidemic rheumatic fever. The dramatic decline in the incidence of endemic rheumatic fever in this country is most likely related to a combination of improved living conditions and medical intervention for streptococcal pharyngitis. However, these factors may have little or no impact on the incidence of epidemic rheumatic fever, and, therefore, sporadic outbreaks of rheumatic fever may be occurring as they had in the past.

As noted earlier, the incidence of epidemic rheumatic fever may depend solely upon crowding and an outbreak of streptococcal pharyngitis caused by a rheumatogenic strain. Viewed in this context, the outbreak in Utah appears far less unusual. The patients came from large families in which crowding in the home existed, and a known rheumatogenic strain of streptococci (M18) was present in the community. While the patients were primarily White, middle class, suburban and rural children, the requisite conditions for an outbreak were met.

One of the striking features of both the Utah and Pittsburgh outbreaks was the large percentage of patients without an episode of symptomatic pharyngitis. Interestingly, in the earlier outbreak in North Dakota referred to above, the majority of the patients also did not have an episode of symptomatic pharyngitis.[29] The mild nature of the antecedent streptococcal infections in these outbreaks makes primary prevention through medical intervention difficult.

It has been suggested that the outbreaks of rheumatic fever we are currently witnessing may be the consequence of a more relaxed attitude toward streptococcal pharyngitis; perhaps the more selective use of throat cultures, the more selective use of antibiotics, the use of rapid antigen detection tests, and the use of simplified treatment regimens, may be contributing to these outbreaks. There is, however, no evidence to support these claims. Nevertheless, it is important that we continue to be vigilant with respect to streptococcal infections, for this vigilance has contributed to the virtual disappearance of endemic rheumatic fever. While vigilance alone may not be able to entirely prevent outbreaks such as those in Utah and Pittsburgh from occurring, it can certainly prevent them from spreading.

REFERENCES

1. Gordis L: The virtual disappearnce of rheumatic fever in the United States: lessons in the rise and fall of disease. Circulation, 1985, 72:1155-1162.
2. Veasy LG, et al: Resurgence of acute rheumatic fever in the Intermountain Area of the United States. N Engl J Med, 1987, 316:421-427.
3. Wald ER, et al: Acute rheumatic fever in Western Pennsylvania and the Tri-State area. Abstract (977) presented at the Twenty-sixth Interscience Conference on Antimicrobial Agents and Chemotherapy, 1986.
4. Bland EF: Declining severity of rheumatic fever. A comparative study of the last four decades. N Engl J Med, 1960, 262:597-599.
5. Public Health Board of Denmark. Reported rheumatic fever incidence in Denmark, 1862-1962.
6. Poynton FJ: Acute rhematism in children. Brit Med J, 1920, 2:858.
7. Paul JR, ed: Rheumatic Fever in New Haven, Science Press Printing Co., 1941, Lancaster PA.
8. Markowitz M: Eradication of rheumatic fever: An unfilled hope. Circulation, 1970, 41:1077-1084.
9. Markowitz M: Rheumatic fever in the eighties. Ped Clinics of North America, 1986, 33:1141-1150.
10. Gordis L, et al: Studies in the epidemiology and preventability of rheumatic fever. I. Demographic factors and the incidence of acute attacks. J Chron Dis, 1969, 21:645-654.
11. Gordis L: Effectiveness of comprehensive-care programs in preventing rheumatic fever. N Engl J Med, 1973, 289:331-335.
12. Glover JA: Milroy lectures on the incidence of rheumatic diseases. I. The incidence of acute rheumatism. Lancet, 1930, 1:499-505.
13. Denny FW, et al: Prevention of rheumatic fever: Treatment of the preceding streptococcal infection. JAMA, 1950, 143:151-153.
14. Budetti P, et al: Federal health programs reforms: Implications for children's health care. Milbank Mem Fund Q, 1981, 60 (1):155-181.
15. Patarroyo ME, et al: Association of a B-cell alloantigen with susceptibility to rheumatic fever. Nature, 1979, 278:173-174.
16. Breese BB: in Beta Hemolytic Streptococcal Diseases, Breese BB and Hall CB, ed: Houghton Mifflin Publishers, Boston, 1978, p 36.
17. Gordis L, et al: Studies in the epidemiology and preventability of rheumatic fever. III. Evaluation of the Maryland rheumatic fever registry. Public Health Rep, 1969, 84:333-338.
18. Hall CB. Unpublished data.
19. James L and McFarland RB: An epidemic of pharyngitis due to a nonhemolytic group A streptococcus at Lowry Air Force Base. N Engl J Med, 1971, 284:750-752.
20. Madsen T and Kalback K: Investigations on rheumatic fever subsequent to some epidemics of septic sore throats. Acta Path and Microbiol, Scand, 1940, 17:305.
21. Bisno AL: The concept of rheumatogenic and nephritogenic group A streptococci. In: Streptococcal Diseases and the Immune Response, Academic Press, New York, 1980, p 789.
22. Coburn AF and Young DC. The epidemiology of hemolytic streptococcus during World War II in the United States Navy, Balt, Williams and Wilkins Co., 1949.
23. Kuttner AG and Krumweide E: Observations on the epidemiology of streptococcal upper respiratory infections on rheumatic children. A three-year study. J Clin Invest, 1941, 20:273-287.
24. Bloomfield AL and Rantz LA: An outbreak of streptococcal sore throat in an army camp. JAMA, 1943, 121:315-319.
25. Potter EV, et al: Tropical acute rheumatic fever and associated streptococcal infections compared with concurrent acute glomerulonephritis. J Ped, 1978, 92:325-333.
26. Majeed-HA, et al: The concurrent associations of group A streptococcal serotypes in children with acute rheumatic fever or pharyngitis-associated glomerulonephritis and their families in Kuwait. Int J Micro and Hygiene, 1986, 262:346-353.
27. Rammelkamp CH, et al: Significance of the epidemiologic difference between acute nephritis and acute rheumatic fever. Trans Assoc Am Physicians, 1952, 65:168-175.
28. Stollerman GH: Nephritogenic and rheumatogenic group A streptococci. J Inf Dis, 1969, 120:258-263.
29. Zimmerman RA, et al: An epidemiologic investigation of a streptococcal and rheumatic fever epidemic in Dickinson, North Dakota. Pediatrics, 1962, 30:712-719.

right on TARGET

Consider a few features of **The Western Journal of Medicine:**

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

Enclosed is $______ to cover ______ subscriptions.
Subscription renewal ☐ Regular subscription ☐
Foreign subscription ☐

TO: ____________________

Street ____________________

City/State/Zip ____________________

Specialty ____________________

Gift Card to read "From ____________________"

The Western Journal of Medicine

Please mail this coupon with enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year,
$90 2 years

Impartiality in Medical Staff Privileges Cases

HENRY R. ARKIN, J.D.

A basic element of due process is impartiality. In a medical staff privileges case, a failure to provide impartial decision makers for a physician whose privileges are being threatened would be a denial of due process as well as a violation of the principle of professional self-regulation. Challenges to the fairness of decision makers in privileges cases frequently take the form of antitrust actions, but impartiality as an element of due process encompasses a greater range of situations than the economic self-interest at issue in an antitrust suit. While the financial stakes and chilling effects are greater in antitrust litigation, due process suits challenging impartiality do occur, and an understanding of the due process requirement of impartiality is necessary for all physicians involved in peer review and privileges proceedings.

Impartiality, or bias, may be divided into general, but distinct, categories of 1) personal prejudice or animosity, 2) financial conflict of interest such that the decision maker stands to gain or lose by his decision, and 3) prior knowledge or prior participation leading to prejudgment. A fourth category recognized by some courts is where the decision maker has been enmeshed in other matters involving the person whose rights he is judging. Individuals falling within one or more of these categories should be disqualified from acting as decision makers, and a failure to remove such persons can result in a denial of due process.

Impartiality decisions in privileges cases have been concerned mainly with prior knowledge and participation; with the latter, prior participation, comprising categories of prior participation by the decision maker as an earlier decision maker, as a member of an investigating committee, as a witness, or as a complainant or adversary. Simple knowledge is frequently a concern in a privileges case because it is not likely that physicians in a hospital will be unaware of alleged problems and deficiencies of a colleague. The smaller the hospital, the greater the likelihood of prior knowledge. Prior participation can be a problem because of a lack of experience or knowledge of procedural matters or, again in smaller hospitals, because of a small pool of physicians to perform all the necessary functions. As discussed below, prior knowledge or participation *per se* does not necessarily preclude impartiality. Rather, it is the degree and nature of the prior knowledge or participation that can disqualify a decision maker.

In privileges cases, as in other kinds of proceedings, courts recognize a presumption of impartiality for the decision makers involved.[1] A burden, therefore, is placed on the physician claiming bias or lack of impartiality. A simple allegation will not suffice: the challenging physician must present actual evidence of possible bias to overcome the presumption of impartiality. However, the physician must be given the opportunity to establish such evidence. In a recent California case, the court stated that the physician must be allowed to question designated decision makers in the manner of jury selection, or *voir dire:*

> ...while the hospital's bylaws did not specifically provide for *voir dire* of the hearing panel, basic notions of fairness dictate that an individual, whose right to practice his livelihood at a particular hospital is being revoked, has a right to examine the members of the tribunal for possible bias against him. Fairness, according to the court, requires a practical method of testing impartiality, and *voir dire* is one such practical method.[2]

As stated, in the reported due process decisions, prior knowledge and participation have been the primary concern of the courts. Personal animosity has had little discussion in the reported cases. Financial conflict of interest has been at issue in the due process cases, but, again, this problem is much more frequently addressed from the more costly perspective of antitrust law. From the due process perspective, the courts, most implicitly, appear to follow the presumption of impartiality regarding competing physicians serving as decision makers. (However, with the enactment of P.L. 99-660 on November 14, 1986, changes may develop in this regard. This federal act creates the opportunity for immunity protection for physician decision makers in "professional review." One requirement for this protection is that individuals acting as decision makers may not be in "direct economic competition with the physician involved."[3] What this means precisely, and what, if any, changes in current practices this may require, is not clear at this time. One conclusion can be drawn: legal developments regarding finan-

---

HENRY R. ARKIN, J.D., Health Law Division, Office of the General Counsel, American Medical Association, Chicago, Ill.

cial conflicts of interest will likely emanate from legislation and antitrust law, not from judicial views of due process.)

Regarding the law of due process and prior knowledge and participation, ideally, as for judges and jurors, physicians serving as decision makers in privileges proceedings would have little or no prior exposure to the matter to be decided. However, given the nature of the hospital setting, near or complete unfamiliarity or lack of involvement is not required. Regarding simple prior knowledge, the attitude of the courts is that due process does not require that a physician be provided a hearing panel "made up of outsiders or of doctors who have never heard of the case and who (know) nothing about the facts of it or what they (suppose) the facts to be."[4] Similarily, in a 1979 case, the Oregon supreme court ruled that even though members of decision making committees were aware that things in the physician's department "had not been all sweetness and light," because the physician failed to carry the burden of showing prejudgment bias or basic unfairness, such general knowledge was not objectionable.[5]

Prior participation is more complex. Prior participation *per se* is not a violation of due process, but the particular nature and extent of a decision maker's prior participation could well be. In analyzing a prior participation problem, the first consideration must be the specific role in which the decision maker earlier functioned. Whereas prior participation as an adversary would automatically preclude impartiality, prior participation in another role may not. But, regarding such other, nonadversarial, roles, as a practical matter, the most prudent policy for a medical staff to follow would be that stated in 1971 Joint Commission on Accreditation of Hospitals guidelines for medical staff bylaws:

> No staff member who has actively participated in the consideration of the adverse recommendation shall be appointed a member of this hearing committee unless it is otherwise impossible to select a representative group due to the size of the medical staff.[6]

As stated above, prior participation of a decision maker can be divided into categories of prior participation as an earlier decision maker, as an investigator or as part of an investigating committee, as a witness, or as an adversary or prosecutor, or in some combination of these roles. Regarding prior participation as a decision maker—where a current decision maker would be sitting on a committee reviewing an earlier decision in which he participated—without question, it is preferable and advisable to avoid such overlapping membership on decision making bodies.[7] Even where an individual physician would be able to maintain objectivity in the matter, there could be an appearance of bias when the decision maker reviews judgments in which he had a part. In the handful of cases on this subject, the courts, after a careful review of the record, have taken a somewhat tolerant approach,[8] but overlapping membership should be avoided or, where necessary, minimized.

More troublesome than a combination of decision making at one level with decision making at a lower level is the combination of decision making with another function at a lower level—or for that matter the same level. These combination of functions problems can arise in a variety of ways, often unforeseen. As a general proposition, a combination of decision making with an investigative or a witness function may be upheld by a court depending on the circumstances, but a combination of decision making with an adversarial or prosecutorial role is always improper. From a practical perspective, however, to reiterate, it would be prudent to try to exclude from a decision making role any medical staff member who has served even in an investigative role or as a witness if there was "active participation" in these functions.

Regarding the combination of a decision making, or adjudicatory, role with an investigative role, the most important consideration for privileges disputes is the 1975 U.S. Supreme Court decision in *Withrow v. Larkin*, a medical licensing case.[9] Here, members of the Wisconsin Medical Licensing Board held an initial "investigative hearing" to determine if there was probable cause to proceed to a charge and a revocation hearing. The acutal investigation was performed by the staff of the board. At the investigative hearing, which was closed to the public, board members heard witnesses, and counsel for the physician was allowed to be present although not to cross-examine. The challenging physician claimed the board's involvement at the investigative stage destroyed its impartiality.

The Supreme Court disagreed. A combination of judging and investigating functions is not improper *per se*, the Court stated, and the simple assertion of bias in this regard would not overcome the presumption of impartiality. The Court went on, however:

> That is not to say that there is nothing to the argument that those who have investigated should not then adjudicate. The issue is substantial, it is not new, and legislators and others concerned with the operations of administrative agencies have given much attention to whether and to what extent distinctive administrative functions should be permitted by the same persons. No single answer has been reached. Indeed, the growth, variety, and complexity of the administrative processes have made any one solution highly unlikely.[10]

Despite this caution, *Withrow* stands for the proposition that a combination of adjudicatory and investigative roles is not automatically unfair, and such combinations can be upheld depending on the particular facts of a case.

In a privileges case, a combination of adjudicatory and investigative or witness functions can take any number of forms. Two cases are illustrative. In *Ladenheim v. Union County Hospital District*,[11] the first of four procedural levels was a hearing before the executive committee of the medical staff sitting as the credentials committee. One of the three members of this committee had assisted the hospital attorney in preparing the written charges against the physician by interpreting a memorandum sent to him by the director of nurses. This degree of participation in the investigative stage, and familiarity with the evidence, was not found objectionable by the court, which distinguished between information acquired through participation in the case and that which derives from an "extrajudicial source," the latter being of a nature to disqualify a decision maker. In *Leonard v. Board of Directors*,[12] a combination of adjudicatory and witness functions of a non-physician member of the board of directors was at issue. Charges against the physician here included insubordination directed at the board, and for this reason a board member with the best first-hand knowledge of the facts testified before a hearing committee of physicians. The board member then participated first in the board's consideration of the hearing committee's recommendation of revocation and then on a joint conference committee. The court found this combination of functions permissible considering the board member to have acted only as a "witness developing facts rather than as an advocate or counsel" when he testified at the evidentiary hearing. Citing *Withrow*, the court suggested that even if the board member had assumed a role of an investigator, this may also have been acceptable. It must be pointed out, however, that the court apparently gave weight to the finding that the facts about which the director testified "were not conclusory facts and were, for the most part, undisputed by the plaintiff."

No firm or universal guidelines can be stated on the degree of prior participation in an investigative, or witness, role that a particular court will tolerate, and, as can be seen from the two preceding cases, these roles can take many forms. Certainly the Supreme Court's decision in the *Withrow* case should not be ignored, but *Withrow* does point to the threat to impartiality by a combination of functions.

Different from the *Withrow* situation of a combination of decision making and investigative functions is the combination of decision making and adversarial or prosecutorial functions. Due process and fairness require that this later combination of functions must always be avoided.[13] This rule is based on the simple proposition that "no man shall be a judge in his own cause."[14] Once an individual assumes an adversarial role, with its commitment, and obligation, to "win," impartiality is no longer considered possible. In a privileges case, this rule of "separation of functions" most obviously applies to a medical staff member who presents charges against the physician to a hearing panel. The rule would apply also to a hospital attorney and, obviously, to a medical staff or board member who may have initiated a complaint. It would apply in addition to physicians who because of close professional or personal relationships with those in an adversarial role may because of such relationships occupy an adversarial role themselves without intending or realizing it, for instance, physicians who are partners with or who receive substantial referrals from a physician in an adversarial role.[15]

A number of privileges cases have dealt with such separation of functions problems. A simple example is the recent case of *In Re Zaman*.[16] In this case, three physicians "with admitted bias" began the proceeding by submitting complaints to a hospital committee. The case proceeded to the executive committee of the medical staff and then to a joint conference committee consisting of four trustees and four physicians. Of the four physicians on this final panel, three were the original complainants. This the supreme court of South Carolina found to be improper: "Having three of respondent's original accusers sit also as his jury is a direct violation of respondent's right to a fair and meaningful hearing under the due process clause." Improper combination of functions was found also in *Hoberman v. Lock Haven Hospital*.[17] The medical staff member who initiated the charges here presented evidence to the medical staff executive committee and then participated in the committee's discussions and the decision. This combination of the functions of complainant, prosecutor, and judge in one person was found to be a violation of due process. The same view was expressed in *Storrs v. Lutheran Hospitals and Homes Society*,[18] where the chief of the medical staff summarily suspended the physician, presented the case against him, was a witness against him, and then was a voting member of a joint review committee ruling on the matter.

The principle of separation of functions would also apply to hospital attorneys. Just as it is improper for a physician who acts as an adversary or prosecutor to act also as a decision maker, it is improper for an attorney who presents a case, or who advises the physician who presents a case, to act also as counsel to the decision making body. For instance, in *Christhilf v. Annapolis Emergency Hospital Association*,[19] a federal court of appeals pointed out that a heavy burden had been placed on the hospital's counsel "who has been cast in the triple role of representing the hospital in court, advising the board about the discovery it should allow and the procedure it should follow in the administrative hearing, and presenting the charges against the doctor." The court suggested a change of hospital procedures or the appointment of a hearing officer.

In summary, impartiality is a concern in all privileges cases. With a small medical staff, it is all the more a potential problem. The courts express a somewhat tolerant attitude, not requiring the decision making process to be as "antiseptic" as a criminal prosecution,[20] but possibilities of bias – whether from personal animosities, financial conflicts of interest, or improper combinations of functions – must be guarded against at all times and avoided or minimized wherever possible.

REFERENCES

1. Kiracofe v Reid Memorial Hospital, 461 NE2d 1134, 1140-41 (IllApp 1984); Ritter v Board of Commissioners, 637 P2d 940, 946 (Wash 1981).
2. Lasko v Valley Presbyterian Hospital, 225 CalRptr 603 (CalApp 1986). See also Duffield v Charleston Area Medical Center, 503 F2d 512, 515-16 (4th Cir 1974).
3. "Health Care Quality Improvement Act of 1986," Pub L No 99-660, §412(b)(3)(A)(ii) and (iii).
4. Klinge v Lutheran Charities Association, 523 F2d 56, 63 (8th Cir 1975).
5. Straube v Emanuel Lutheran Charity Board, 600 P2d 381, 385 (Or 1979).
6. Joint Commission on Accreditation of Hospitals, Guidelines for the Formulation of Medical Staff Bylaws, Rules and Regulations, art viii, §4(a) at 23 (1971). See also California Medical Association, Guiding Principles for Physician-Hospital Relationship (1974), in which is contained CMA-CHA Uniform Code of Hearing and Appeal Procedures, §2(e) at 10.
7. Id.
8. See Maimon v Sisters of Third Order of St. Francis, 458 NE2d 1317, 1320-21 (IllApp 1983); Miller v National Medical Hospital, 177 CalRptr 119, 125 (CalApp 1981); Ladenheim v Union County Hospital District 394 NE2d 770, 774 (IllApp 1979). See also, Duffield v Charleston Area Medical Center, 503 F2d 512, 515-518 (4th Cir 1974) (where the court in tolerating overlapping membership stated that a key consideration is whether or not the prior knowledge came only from earlier participation in proceedings of the case, as opposed to "extra judicial" or outside sources); Woodbury v McKinnon, 447 F2d 839, 845 (5th Cir 1971) ("The consideration on a previous occasion of the plaintiff's qualifications would not demonstrate such bias as to constitute a denial of due process".) But see Applebaum v Board of Directors 163 CalRptr 831, 838 (Cal App 1980).
9. 95 SCt 1456 (1975).
10. Id at 1466-67.
11. 394 NE2d 770 (IllApp 1979).
12. 673 P2d 1019 (ColoApp 1983).
13. A few courts, and implicitly JCAH guidelines (footnote [6]), recognize that there may be situations where if enough decision-makers are excluded for reasons of bias, it may be impossible to proceed with a case. This would be a problem in hospitals with very small medical staffs where, presumably, substitution or use of outside physicians would not be possible or practical. A court in such circumstances may follow a "rule of necessity" and tolerate some degree of an otherwise impermissible combination of functions, feeling that disqualification because of bias should not be allowed to destroy the only body with the power to act. Leonard v Board of Directors, 673 P2d 1019, 1022-1023 (ColoApp 1983); Duffield v Charleston Area Medical Center, 503 F2d 512, 519 (4th Cir 1974).
14. KC Davis, Administrative Law Treatise 18:2 at 340 (2d ed 1979). See eg, Poe v Charlotte Memorial Hospital, 374 FSupp 1302, 1310 (WDNC 1974).
15. Applebaum v Board of Directors, 163 CalRptr 831 (CalApp 1980).
16. 329 SE2d 436 (SC 1985).
17. 377 FSupp 1178, 1186 (MDPa 1974).
18. 609 P2d 24, 28 n 12 (Alaska 1980).
19. 496 F2d 174, 181 (4th Cir 1974). But see Ladenheim v Union County Hospital District, 394 NE2d 770, 774-775 (IllApp 1979).
20. Suckle v Madison General Hospital, 362 FSupp 1196, 1210 (WDWis 1973).

THE MOUNT SINAI CENTER FOR FACIAL NERVE DISORDERS

A multi-disciplinary team of physicians and surgeons at The Mount Sinai Hospital for the complete evaluation and treatment of facial nerve disorders.

PROGRAM DIRECTORS

AVRIM R. EDEN, M.D.
CHIEF OF OTOLOGY
THE MOUNT SINAI MEDICAL CENTER

DAVID SIMPSON, M.D.
ASSISTANT PROFESSOR OF NEUROLOGY
CO-DIRECTOR, EMG LABORATORY

Address for patients and correspondence:

FACIAL NERVE CENTER
The Mount Sinai Hospital
19 East 98th Street
Suite 6A, Box 1191
New York, NY 10029

FOR PATIENT APPOINTMENTS OR INFORMATION:

(212) 650-2309

Important Advances in Clinical Medicine

Epitomes of Progress—Allergy

The Scientific Board of the California Medical Association presents the following inventory of items of progress in allergy. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in allergy that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Allergy of the California Medical Association and the summaries were prepared under its direction.

Mental Effects of Long-term Theophylline Therapy in Children

Theophylline is the most widely used drug in the United States for the control of chronic asthma. Its use has benefited most persons with this condition. It has an unusually narrow therapeutic index, however, and its use is associated with an increasing number of reports of acute toxic reactions. Central nervous system toxicity occurs with overdosage or by extraneous or intrinsic factors that retard theophylline clearance in patients receiving adequate and proper dosages. Nervousness, restlessness, insomnia, tremors, headaches and convulsions are often noted with high theophylline serum levels.

There have been few reports published of more subtle mental effects, even though many clinicians report cases of such effects anecdotally. Published reports include speech defects; episodic bizarre behavior described as "theophylline madness"; exacerbation of spasticity, depression, behavior or learning problems (or both), and sleep disruption. Considering the widespread use of theophylline, it is surprising that controlled studies have not long since been done of the effects of this drug on brain function.

A retrospective survey has been done of possible adverse behavioral effects of theophylline use in a large group of children with asthma. This showed a significant correlation between theophylline use and inattentiveness, hyperreactivity, irritability and difficult and "withdrawn" behavior.

More recently, in fully controlled trials, theophylline has been shown to adversely affect brain function as measured by a number of sensitive psychological tests such as the Selective Reminding test, the Benton Visual Retention test, the Stroop test and parents' and teachers' child behavior checklists.

In one study a significant improvement in psychological test results occurred when children with asthma were switched from theophylline to cromolyn sodium therapy. These tests reflected visual-spatial planning but were only seen in patients with lower IQ scores (87 yo 105) and not in those with IQs in the 111 to 134 range.

Another study showed a correlation between depression and the length of time children had been taking theophylline. The study design, however, did not permit discrimination between an asthma effect or a drug effect as the more likely precipitant.

These and other evaluations have provided evidence that the use of theophylline adversely and significantly affects cognitive ability, especially in terms of short-term memory and concentration, school performance and behavior of some children.

Studies of caffeine intake, which is closely related, have shown that tolerable doses of caffeine in the short term increase the capacity for sustained intellectual effort and decrease reaction time. Higher doses and long-term consumption of caffeine, however, cause a worsening of delicate muscular coordination and accurate timing, restlessness, disturbed sleep and irritability.

The controlled studies of the use of theophylline and the similar well-studied effects of caffeine ingestion question the wisdom of prescribing ongoing theophylline therapy for certain children. It is now clear that physicians need to ask specifically about behavior, school performance and sleeping patterns to assure safety with theophylline and that parents should be advised of possible side effects with its use. A switch to an alternate therapy on a trial basis should be considered in any questionable instance.

Clifton T. Furukawa, M.D.
Seattle

REFERENCES

American Academy of Pediatrics, Section on Allergy and Immunology: Management of asthma. Pediatrics Dec 1981, 68:874-879.

Furukawa CT, DuHamel T, Weimer L, et al: Cognitive and behavioral findings in children taking theophylline versus cromolyn (Abstr). J Allergy Clin Immunol Jan 1986, 77(pt2):186.

McLoughlin J, Nall M, Isaacs B, et al: The relationship of allergies and allergy treatment to school performance and student behavior. Ann Allergy Nov 1983, 51:506-510.

Rachelefsky G, Wo J, Adelson J, et al: Behavior abnormalities and poor school performance due to oral theophylline (T) usage (Abstr). J Allergy Clin Immunol Jan 1986, 77(pt2):145.

Springer C, Goldenberg B, Ben Dov I, et al: Clinical, physiologic, and psychologic comparison of treatment by cromolyn or theophylline in childhood asthma. J Allergy Clin Immunol Jul 1985, 76:64-69.

The Management of Asthma During Pregnancy

Asthma is probably the most common potentially serious medical condition to complicate pregnancy. Retrospective studies suggest that maternal asthma increases the incidence of preterm births, infants with low birth weights and perinatal deaths. Although confirmatory data are lacking, the accepted working hypothesis is that adequate control of asthma during pregnancy is the most important factor in reducing this excess risk.

Optimal management of asthma during pregnancy may involve environmental control measures, immunotherapy, medication or a combination of these approaches. Decreased exposure to avoidable triggering factors (household pets, other allergens, smoking) is an obvious, but sometimes under-used, therapeutic modality. Immunotherapy is considered safe during pregnancy in women who are already deriving benefit from it; conservative dosing is recommended to minimize the chance of an anaphylactic reaction. The benefit-risk ratio does not usually favor beginning immunotherapy during pregnancy.

Pharmacologic management of asthma during pregnancy is more problematic because no asthma medication can be considered proved safe during pregnancy according to the recent Food and Drug Administration (FDA) pregnancy classification. There are a number of asthma medications, however, that appear to involve less risk during pregnancy than the risk of the uncontrolled asthma that could result if they were not used. Reassuring data in humans are available for ephedrine, theophylline, cromolyn sodium, beclomethasone dipropionate and prednisone/prednisolone. In addition, terbutaline sulfate has been used extensively in the management of premature labor, although there are no reported data in humans during early pregnancy. Inhaled bronchodilators are recommended by some authors because of their topical route and, in the case of terbutaline, the favorable FDA pregnancy classification based on reassuring animal data. The optimal sympathomimetic drug of choice for the treatment of acute asthma during pregnancy (parenterally given epinephrine or terbutaline, or mechanically nebulized bronchodilators) is not uniformly agreed upon, but, as noted above, adequate control of the asthma is the most important challenge in that situation.

Although pharmacokinetic changes have been reported to occur during pregnancy, theophylline is the only asthma medication for which gestational pharmacokinetic data are available. One study of ten pregnant women with asthma suggests that the clearance of theophylline may be prolonged during later pregnancy but that the weight-corrected volume of distribution does not change during pregnancy. Thus, the recommendations for milligram-per-kilogram loading doses of theophylline do not need to be altered during pregnancy, but maintenance doses may need to be reduced. Because the data reveal significant interpatient variation in gestational theophylline pharmacokinetics, determining theophylline concentrations at least once each trimester is recommended in pregnant patients receiving theophylline regularly.

Michael Schatz, M.D.
San Diego

REFERENCES

Greenberger PA, Patterson R: Management of asthma during pregnancy. N Engl J Med 1985, 312:897-902.

Millstein LG: FDA's 'pregnancy categories' (Letter). N Engl J Med Sep 18 1980, 303:706.

Schatz M, Zeiger RS, Mellon M, et al: Asthma and allergic diseases during pregnancy: Management of the mother and prevention in the child, In Middleton E Jr, Reed CE, Ellis EF (Eds): Allergy: Principles and Practice, 2nd Ed. St Louis, CV Mosby 1983, pp 935-986.

Nonsedating Antihistamines in the Treatment of Allergic Disease

Although the effects of histamine have been known for 75 years, it was not until 1937 that Daniel Bovet was able to antagonize this mediator with the first antihistamine, compound 929F. Although he received a Nobel prize for his work, this compound was too toxic for human use. Now, more than 50 different antihistamines in six different classes are available by prescription or over the counter in the United States.

We now know that there are H_1 and H_2 histamine receptors, but we are most concerned with H_1 receptor activity in cases of allergy, whereas H_2 receptors primarily regulate gastric secretion of hydrochloric acid. The effects of classic antihistamines on H_1 receptors in the central nervous system, with resulting sedation and their anticholinergic effect on mouth dryness, limit their usefulness in many patients. The unwanted effects of sedation are due primarily to the lipid solubility of these older compounds, which allows them to cross the blood-drain barrier into the central nervous system and affect the H_1 receptors in the brain. The newer nonsedating antihistamines are often analogues or even active metabolites of classic antihista-

Prevent recurrences month after month*

ZOVIRAX®

(acyclovir)

CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psychosocial difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies,, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤ 10 ml/min/1.73/m^2.

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"- Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

---

*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

Wellcome
Burroughs Wellcome Co.
Research Triangle Park
North Carolina 27709

Copr. © 1986 Burroughs Wellcome Co. All rights reserved. 86-ZOV-5

mines. Their molecular structure, however, interferes with passage into the brain. Many of the new nonsedating antihistamines are currently under clinical development, but three drugs—astemizole, mequitazine and terfenadine—are available for use in many countries.

In May 1985, terfenadine (Seldane) was approved for use in the United States as a 60-mg tablet to be administered twice a day for the treatment of seasonal allergic rhinitis. This compound has been shown to be an effective H_1 receptor antagonist for most patients with allergic rhinitis. In clinical trials, the incidence of sedation has been no greater than that reported by patients taking a placebo. Twice-a-day dosing increases patients' compliance, and the lack of central nervous system and anticholinergic side effects encourages continued use. Activity is seen in most patients after a single dose, but maximum response may not occur for three days.

Astemizole is currently available in many countries as a 10-mg tablet and should be given approval by the Food and Drug Administration for use in the United States by spring 1987. This compound has a very strong affinity for H_1receptors and a half-life of several days, which accounts for its long duration of activity. This effect permits once-a-day dosing, but it may result in the prolonged inhibition of immediate hypersensitivity skin test reactions. The drug has been effective in treating chronic urticaria and allergic rhinitis. A somewhat slow onset of activity in some patients may be overcome by giving a loading dose of 20 to 30 mg a day for the initial one to three days of therapy.

Mequitazine is a nonsedating antihistamine that has a somewhat narrow therapeutic-to-sedation range. It, too, has a slower onset of activity than terfenadine, but it has been used successfully in Europe for controlling allergic symptoms. Recent studies indicate not only that it is an antagonist of histamine but that it also has the capacity to inhibit mediator release. There are currently no ongoing clinical trials in the United States, so its availability in this country is uncertain.

Most clinical studies with the new nonsedating antihistamines have shown them to be as effective as classic antihistamines in controlling the symptoms of allergic rhinitis. Not all patients respond, however, or respond equally. Furthermore, it appears that some patients whose symptoms are adequately controlled during periods of moderate antigen exposure derive less benefit during peak periods of antigen concentration. Some of these compounds have a longer duration of action, which has raised the question of cumulative effects with prolonged use. There is currently no evidence of this in standard patient care, but the possibility may exist in cases of drug overdose.

At least five other nonsedating antihistamines are under development in the United States. Some of these can be administered once a day, others will be available in a liquid formulation for children and some will be combined with a systemic decongestant such as pseudoephedrine.

The advent of these newer nonsedating antihistamines will offer physicians a wider choice of medication to inhibit the adverse effects of histamine in their allergic patients. Because antihistamines only block the effect of histamine, however, for some patients greater relief of symptoms awaits the development of medications that can prevent or modify the release of, or the effects of, the other mediators of the allergic response. Nevertheless, this new class of nonsedating antihistamines allows the almost 50% of all allergy patients who report sedation from classical antihistamines the opportunity to obtain relief without significant side effects.

James P. Kemp, M.D.
Eli O. Meltzer, M.D.
San Diego

REFERENCES

Kemp JP, Buckley CE, Gershwin ME, et al: Multicenter, double-blind, placebo-controlled trial of terfenadine in seasonal allergic rhinitis and conjunctivitis. Ann Allergy Jun 1985, 54:502-509.

Trzeciakowski JP, Levi R: Antihistamines, In Middleton E Jr, Reed CE, Ellis EF (Eds): Allergy: Principles and Practice, 2nd Ed. St Louis, CV Mosby 1983, pp 575-592.

Neuropeptides

The mechanisms by which functionally distinct cells communicate and in the process regulate their physiologic capacities is one of the most active areas of experimentation in modern biology. Early investigations showed that neuropeptides, hormones and lymphokines mediated diverse intercellular modulatory functions in separate systems such as the central nervous, endocrine and immune systems, respectively. It is now clear, however, that bidirectional communication between each of these three systems occurs, and, in the case of neuroimmune interactions, lymphokines such as interleukin 1 and 2 may activate glial cells and astrocytes, whereas neuropeptides have now been shown to modulate immediate hypersensitivity and cell-mediated immune responses.

Neuropeptides released from peripheral sensory nerves including substance P, vasoactive intestinal peptide and somatostatin are potent mediators of smooth muscle and vascular functions. Substance P has been observed to contract intestinal smooth muscle, produce the vasodilation of systemic arterioles and increase the secretion of glycoprotein-rich fluid from human tracheal epithelium, whereas the vasoactive intestinal peptide causes intestinal smooth muscle relaxation and increased vasodilation of cutaneous microvessels. These effects may contribute to the plasma extravasation and alterations in blood flow that accompany inflammatory responses.

The modulation of immediate hypersensitivity reactions by neuropeptides is suggested by the elevated local tissue concentrations of peptides such as substance P and somatostatin detected during acute responses. In vitro studies have shown that substance P acts selectively on mast cells, but not basophils, by an IgE-independent mechanism to cause the release of histamine, leukotrienes and other mediators. In contrast, somatostatin expresses only minimal mast cell-activating activity and may modulate hypersensitivity reactions by indirect mechanisms by inhibiting the release of mediators from immunologically activated basophils.

An understanding of the mechanisms by which neuropeptides alter cell-mediated immune responses has been derived principally from in vitro experimentation. Peptides such as somatostatin and vasoactive intestinal peptide show mainly inhibitory effects on T- and B-lymphocyte activities such as proliferation and immunoglobulin synthesis, respectively. These responses are thought to be mediated by the elevation of intracellular 3′:5′-cyclic adenosine monophosphate levels in response to the neuropeptides binding to specific cell-surface receptors. In contrast, substance P has been shown to exert a stimulatory influence on T-lymphocyte proliferation and to increase the production of IgA from gut-derived lymphocytes. Experiments suggest that these substance P effects are also receptor mediated and are a result of substance P-induced activation of the phosphatidylinositol pathway in a distinct subset of lymphocytes.

The concept of the possible participation of neuropeptides in the pathogenesis of certain disease states has come largely from their chemical or immunochemical detection in tissue extracts or fluids, or by showing that locally administered neuropeptides mimic the features of hypersensitivity. Substance P has been detected in the nasal secretions of humans with allergic rhinitis and in the tissues of patients with urticaria. Its role in these conditions, however, and in other disease states where its immunopathologic role has been suggested, such as in arthritis and asthma, has yet to be conclusively determined. Progress in our understanding of how neuropeptides modulate neuronal and nonneuronal homeostatic responses will be largely determined by the identification and purification of specific neuropeptide receptors, the in situ analysis of receptor and receptor-gene regulation and the design of novel pharmacologic agonists and antagonists based on our understanding of receptor stereospecificity.

Donald G. Payan, M.D.
San Francisco

REFERENCES

Barnes DM: Nervous and immune system disorders linked in a variety of diseases. Science Apr 1986, 232:160-161.

Goetzl EJ (Ed): Proceedings of a conference on neuromodulation of immunity and hypersensitivity. J Immunol 1985, 135(suppl):739S-863S.

Iversen LL: The possible role of neuropeptides in the pathophysiology of rheumatoid arthritis (Editorial). J Rheumatol 1985, 12:399-400.

Payan DG, McGillis JP, Goetzl EJ: Neuroimmunology. Adv Immunol 1986, 39:299-323.

Compliance in Taking Medications

Medical compliance has become a major factor in treating chronic disease. It is estimated that 50% of patients do not comply with their medical regimens. Noncompliance is especially a problem in treating patients with allergic disorders, as they frequently must take medication even when they are feeling well.

Compliance will vary in direct proportion to patients' understanding of a medical problem, their perceived benefit of a therapeutic plan, the possibility of medication side effects, the inconvenience of a therapeutic regimen and its cost.

To decrease the incidence of side effects, a new medication regimen should be initiated with the lowest dose possible, then the dosage titrated slowly up to the optimal therapeutic range (unless side effects occur). Potential side effects should be explained to patients. A written sheet, such as the American Medical Association's patient medication instructions or one designed by the physician, should be given to the patient.

It is important for physicians to explain simply why patients must take their medication in a specific manner. This explanation should be given in lay terms, and patients should be provided with clearly written instructions, including the name of the medication, its dosage and schedule.

A practical way to provide these written instructions is through the use of an inexpensive wallet-sized card called the Medical Management Card. This card has been used with success for years at the allergy clinic of the University of California, Irvine. Complimentary copies of the Medical Management Card can be obtained from Mark Havel, Tri-City Medical Center, 4002 Vista Way, Oceanside, CA 92056 or local Key Pharmaceutical representatives.

In addition to the above, using a simplified drug regimen that, where possible, emphasizes the use of once-a-day or twice-a-day medication will greatly increase the probability that a patient will use the medication regularly. Prescribing Uniphyl, a once-a-day theophylline compound, can facilitate compliance and will still be as efficacious as the standard twice-a-day theophylline preparation, Theo-Dur. Theophylline compliance can be monitored by using Acculevel assay, which gives results in 30 minutes.

A simplified drug regimen is especially important in the school-aged population, where medication is frequently missed if a dose has to be taken at school. In younger children (who are often unable to swallow a tablet), it is frequently difficult to administer a liquid preparation because of taste, problems with spillage and problems with dosing. Therefore, the use of a beaded capsule sprinkled over applesauce or other foods is frequently more convenient.

Physicians should be aware of the economics of a therapeutic plan, but not use generic substitutes to save costs if those products will not have the same therapeutic efficacy as the brand-name medication. This may be especially the case for certain long-acting, sustained-release theophylline preparations.

Gerald L. Klein, M.D.
Vista, California

REFERENCES

Eraker SA, Kirscht JP, Becker MH: Understanding and improving patient compliance. Ann Intern Med Feb 1984, 100:258-268.

Fairshter RD, Bhola R, Thomas R, et al: Comparison of clinical effects and pharmacokinetics of once-daily Uniphyl and twice-daily Theo-Dur in asthmatic patients. Am J Med Dec 20 1985, 79(suppl SA):48-53.

Klein GL, Ziering RW: Improving drug administation in young children with asthma and allergic rhinitis. Immunol Allerg Pract 1983, 5:49-53.

Ruffalo RL, Garabedian-Ruffalo SM, Pawlson LG: Patient compliance. Am Fam Pract Jan 1985, pp 93-100.

Vaughan LM, Weinberg MM, Milavetz G, et al: Multicentre evaluation of disposable visual measuring device to assay theophylline from capillary sample. Lancet 1986, 1:184-186.

Indications for Giving Immune Globulin Intravenously

The current availability of safe intravenous immune globulin preparations has led to applications in various clinical situations. Intramuscular preparations have been used for decades for replacement therapy in antibody deficiency states, but only relatively small doses are tolerated. There is a delay in absorption from the injection site, and some proteolytic degradation may occur before the immunoglobulin is absorbed into the bloodstream. These problems do not exist with intravenously administered immune globulin.

Immune globulin therapy is indicated in patients with humoral immune defects who are unable to produce adequate amounts of IgG (serum IgG levels less than 400 mg per dl in older children and adults or a proved subclass deficiency). Immune globulin given intravenously is preferable to intramuscular preparations in patients with limited muscle mass or bleeding tendencies, those needing large, rapid increases in their serum IgG level or those in whom intramuscular therapy is poorly tolerated. Doses should be individually tailored to a patient's clinical response because susceptibility to infection does not always correlate with IgG serum levels. Generally, levels within one standard deviation of normal for a patient's age can be attained with 150 to 300 mg per kg body weight of immune globulin given intravenously every three weeks, depending on a patient's rate of catabolizing the immune globulin. Deficiency of one or more IgG subclasses in a patient with severe or recurrent infections can be successfully treated with intravenous administration of immune globulin provided the preparation contains adequate concentrations of the deficient subclass(es). Preparations with an IgG subclass distribution similar to that in normal human serum are preferable and are currently available in the United States from Cutter, Hyland and Sandoz laboratories. Prophylaxis or therapy with intravenous immune globulin may also be indicated when there is a defect in a specific antibody formation to a particular infectious agent.

Immune globulin given intravenously in high doses has been found to promote a rapid rise in the platelet count in as many as 75% of patients wiith idiopathic thrombocytopenic purpura (ITP). Splenectomy can often be avoided or postponed in patients unresponsive to steroid therapy who would otherwise need an operation. Response rates and length of remission are more favorable in acute childhood forms of ITP. It is difficult to maintain remission in some cases of chronic ITP unless repeated doses of intravenous immune globulin are given, and this can become expensive and time consuming. Because it is not possible at this time to predict which patients with ITP will respond to immune globulin given intravenously, it may be administered when there is risk of life-threatening hemorrhage (platelet count $<20,000$ per μl), during preparation for an operation, to control platelet deficiency hemorrhage or to avoid a splenectomy. Some patients who fail to respond to splenectomy benefit from intravenous immune globulin therapy. Immune globulin has been used in treating ITP during pregnancy, being administered to a mother before delivery and to a thrombocytopenic infant during the first several weeks of life until the platelet count has become stable.

Anaphylactic reactions have been associated with the intravenous administration of immune globulin in some patients with total IgA deficiency. These patients often form IgG, IgM or IgE (or all three) antibodies against the IgA present in many intravenous preparations of immune globulin. IgE antibodies appear to correlate best with the occurrence of anaphylaxis. If such therapy is indicated in such a patient, an intravenous preparation of immune globulin with a very low content of IgA should be used, preferably less than 5μg per ml. At present, one preparation meeting this criterion is commercially available (Gammagard, Hyland).

Joyce J. Schoettler, M.D.
Douglas C. Heiner, M.D.
Torrance, California

REFERENCES

Bussel J: Intravenous immune serum globulin in immune thrombocytopenia: Clinical results and biochemical evaluation. Vox Sang 1985, 49(suppl):44-50.

Good RA (Ed): Intravenous immune globulin and the compromised host—Proceedings of a symposium. Am J Med 1984, 76(3A):1-231.

Schiff RI: Individualizing the dose of intravenous immune serum globulin for therapy of patients with primary humoral immunodeficiency. Vox Sang 1985, 49(suppl):15-24.

Leukotrienes

The leukotrienes are a family of potent mediators of hypersensitivity and inflammation that are derived from the 5-lipoxygenation of arachidonic acid in mast cells, mononuclear phagocytes and polymorphonuclear leukocytes. Beyond a source in leukocytes and other inflammatory cells and the presence of three conjugated double bonds, for which the family name was selected, the leukotrienes share the same biosynthetic precursor, a requirement for additional polar substituents for expression of activity and oxidative mechanisms of inactivation. The parent 5,6-epoxyeicosatetraenoic acid, termed leukotriene (LT) A_4, is converted enzymatically either to a 5-hydroxy-6-*S*-glutathionyleicosatetraenoic acid designated leukotriene C_4 (LTC_4) and then by peptidolysis to the other sulfidopeptide leukotrienes LTD_4 and LTE_4 or to a 5,12-dihydroxyeicosatetraenoic acid called LTB_4. The principal pathway of inactivation of LTC_4, LTD_4 and LTE_4 is by peroxidation to the respective sulfones and of

LTB_4 by ω-oxidation to 20-hydroxy-LTB_4 and 20-carboxy-LTB_4. Each of the leukotrienes now can be extracted and isolated in high yield by liquid chromatography and quantified by specific and sensitive radioimmunoassays.

LTC_4, LTD_4 and LTE_4 are potent vasoactive and smooth muscle contractile factors that together constitute the slow-reacting substance of anaphylaxis. Maximal constriction of human bronchi is evoked by concentrations of the sulfidopeptide leukotrienes 1/10,000 to 1/100 that of histamine. In addition, the pulmonary airway constriction is maintained for a longer time when the stimulus is leukotrienes than if it is histamine. Concentrations of sulfidopeptide leukotrienes too low to elicit bronchial constriction may decrease the threshold for responses to subsequent stimuli and thus create a hyperirritable state, as in asthma. LTB_4 is the most potent stimulus of polymorphonuclear leukocyte chemotaxis and other functions to be generated from arachidonic acid. LTB_4, like prostaglandin E_2, is immunosuppressive by way of specific actions on regulatory T lymphocytes. The effects of leukotrienes on leukocytes, blood vessels, smooth muscles and other tissues is mediated by distinct subsets of cellular receptors.

Leukotrienes are detected in tissues and fluids in relation to the expression of several types of hypersensitivity and inflammatory reactions. In the skin, LTD_4 predominates in patients with psoriasis and LTC_4 in cases of allergic reaction elicited by pollen proteins. LTC_4 and LTB_4 are found in the fluid of pulmonary airways of patients during attacks of asthma, whereas LTD_4 and LTE_4 attain high concentrations in cases of adult respiratory distress syndrome. LTB_4 is the principal mediator of neutrophilic reactions, as are typical of gout and spondyloarthritis. Although the establishment of functionally relevant concentrations of leukotrienes in these diseases is temporally related to the tissue reactions, no inhibitors or antagonists of sufficient specificity to confirm the relationship have been applied systematically.

Edward J. Goetzl, M.D.
San Francisco

REFERENCES

Goetzl EJ, Scott WA (Eds): Regulation of cellular activities by leukotrienes and other lipoxygenase products of arachidonic acid. J Allergy Clin Immunol 1984, 74:309-448.

Goetzl EJ, Wong MYS, Matthay MA: Leukotrienes in human hypersensitivity and inflammatory diseases, In Otterness I, Lewis A, Capetola R (Eds): Advances in Inflammation Research Vol 11 New York, Raven Press 1986, pp 47-55.

Lewis RA, Austen KF: The biologically active leukotrienes—Biosynthesis, metabolism, receptors, functions, and pharmacology. J Clin Invest Apr 1984, 73:889-897.

Samuelsson B: Leukotrienes: Mediators of immediate hypersensitivity reactions and inflammation. Science May 1983, 220:568-575.

Childhood Asthma and Sinus Disease

Triggering factors that aggravate bronchial reactivity in patients with asthma continue to be described. In young children, lower respiratory tract infections, especially those due to respiratory viruses, are the most common inciting events; in older children, environmental allergens take on greater importance. The adverse effect of sinus disease on the stability of asthma has been described previously in adults, but only recently has this association been documented in children. In children with lower reactive airways disease, more than 50% have sinus radiographs that are abnormal, with a significant minority showing total opacification of one or more of their sinus cavities. The cases of 48 children (mean age 8.2 years) have been described with chronic (more than three months) reactive airways disease and evidence of chronic sinusitis on sinus radiograph; all had been receiving bronchodilators for at least three months with poor control of the asthma, and 18 had received corticosteroids; 14 were nonatopic. With appropriate antimicrobial management, 39 responded both clinically and radiologically. In some children previously requiring daily antiasthmatic medications, including corticosteroids, these medication regimens were able to be completely discontinued following the resolution of their sinus infections. Other investigators have found not only a reduced requirement for antiasthmatic medications, but also a substantially increased responsiveness to bronchodilator therapy.

Because the clinical signs and symptoms of sinusitis can be varied and at times quite subtle, physicians must rely on other diagnostic aids to establish a diagnosis and assess the adequacy of treatment. The sinus radiograph remains the gold standard for diagnosing sinusitis. There is no universal agreement as to how many radiographic views constitute an adequate examination. In children, however, a Waters view may be sufficient. This view clearly shows the maxillary sinuses are involved in about 90% of sinus infections, which may be due to the fact that their ostia are located high on the medial walls where gravitational forces oppose the upward movement of secretions. The Waters view also is useful for showing the frontal sinuses, and some assessment can be made of the ethmoid air cells. The radiographic signs that most closely correlate with positive bacterial aspirates are opacification, air-fluid levels and mucoperiosteal thickening of the mucosal lining. There is always some disagreement as to what degree of mucosal thickening is significant; we feel that at least 4 mm of thickening should be shown to be considered abnormal.

The bacterial characteristics of sinusitis are derived primarily from maxillary antral aspirates and from surgical mucosal specimens. The most common organisms in children with sinusitis are similar to those found in patients with acute otitis media: *Streptococcus pneumoniae*, *Hemophilus influenzae* and β-hemolytic streptococci; *Branhamella catarrhalis* has been increasingly found in young patients. Furthermore, anaerobic organisms are also commonly cultured when the appropriate media is used. Amoxicillin has proved to be an effective drug and has an 80% cure rate; similar results have been obtained with ampicillin, tetracycline, doxycycline and cefaclor, but penicillin and other cephalosporins are much less effective. Using a combination of erythromycin and sulfisoxazole may be appropriate when amoxicillin treatment fails and there is a suspicion of β-lactamase-producing *B catarrhalis* or *H influenzae.* Under these circumstances, other desirable agents include trimethoprim-sulfimethoxazole and a combination of amoxicillin and clavulanic acid. The appropriate duration of therapy has not been accurately determined, but recent studies indicate that at least three to four weeks are required to effect major radiologic and clinical improvement. If such improvement does not occur after three weeks, it is reasonable to change the antibiotic therapy. If evidence of bronchial hyperreactivity persists in the presence of an unaltered radiograph, antral lavage should be considered; more extensive surgical intervention, such as antral windows, would depend on many variables such as patient age, asthma stability and the location and extent of the disease process.

Stephen M. Nagy, Jr., M.D.
Victor E. Cohen, M.D.
Sacramento, California

REFERENCES

Friedman R, Ackerman M, Wald E, et al: Asthma and bacterial sinusitis in children. J Allergy Clin Immunol Aug 1984, 74:185-189.

Incaudo GA, Gershwinm E, Nagy SM Jr: Differential diagnosis, evaluation and treatment of sinusitis, In Famous Teachings in Modern Medicine, Garden Grove Calif, Medcom, 1986.

Rachelefsky GS, Katz RM, Siegel SC: Chronic sinus disease with associated reactive airway disease in children. Pediatrics Apr 1984, 73:526-529.

Sotomayor JL, Scarpa N, Kolski GB: Sinusitis and asthma in childhood. Hosp Pract Apr 15 1986, 21:129-136.

Late-Phase Reactions and Chronic Asthma

Chronic asthma is characterized by successive attacks of coughing or wheezing, often after respiratory infections. There is usually no obvious correlation to an immediately preceding allergen exposure. Usually minor respiratory irritants, however, such as passive smoking, strong perfume or cooking odors, may cause symptoms. Between attacks, the symptoms may not clear completely, and impaired pulmonary function for airway patency—as determined by the forced expiratory volume in one second (FEV_1), the peak expiratory flow and the maximum midexpiratory flow rate at between 25% and 75% of the values—may persist. Many patients have a few positive immediate skin tests, especially to house-dust mite, cat, pollens and molds, exposure to which does not necessarily correlate with attacks. On provocative inhalation challenge with such an antigen, however, many patients experience a moderate immediate bronchospasm (early phase) that subsides within 30 to 60 minutes, followed in 6 to 8 hours by a more severe bronchospasm, the late-phase asthmatic response (LAR), which is more persistent; these subjects have been called dual responders. Some patients with asthma, however, experience only the early response and others have minimal early but profound LAR. Pretreatment with classic bronchodilators (β-adrenergic agents and theophylline) before challenge can prevent the early response, but is less useful in LAR. Pretreatment with cortiocosteroids prevent or ameliorate only the LAR, while cromolyn sodium pretreatment blocks both early- and late-phase responses.

Studies in allergic humans and dogs suggest that in many, but not all, allergic persons, the combination of antigen and IgE antibodies on mast cells releases histamine, producing a transient reaction. Such activated mast cells, however, release chemotactic mediators, such as leukotriene B_4 and neutrophil and eosinophil chemotactic factors of anaphylaxis, which attract neutrophils and eoisinophils into the inflammatory sites in bronchi and skin. These inflammatory cells release their granular contents, such as neutrophil oxidation products, eosinophil basic proteins that damage the tissues locally. This tissue damage is responsible for the nonspecific hyperirritability of the airways causing chronic asthma. This has therapeutic implications, for these late-phase reactions respond to corticosteroid and cromolyn therapy, but less well to classic bronchodilators. Patients with asthma who have late-phase reactions may respond better to specific immunotherapy than do those who have only immediate early asthmatic responses. This supports the efficacy of immunotherapy in chronic asthma.

Oscar L. Frick M.D., Ph.D.
San Francisco

REFERENCES

Chung KF, Becker AB, Lazarus SC, et al: Antigen-induced airway hyperresponsiveness and pulmonary inflammation in allergic dogs. J Appl Physiol Apr 1985, 58:1347-1353.

De Monchy JGR, Kauffman HF, Venge P, et al: Bronchoalveolar eosinophilia during allergen-induced late asthmatic reactions. Am Rev Respir Dis Mar 1985, 131:373-376.

Filley WV, Holley KE, Kephart GM: Identification of immunofluorescence of eosinophil granule major basic protein in lung tissues of patients with bronchial asthma. Lancet Jul 1982, 2:11-16.

Durham SR, Kay AB: Eosinophils, bronchial hyperreactivity and late-phase asthmatic reactions. Clin Allergy 1985, 15:411-418.

Durham SR, Lee TH, Cromwell O, et al: Immunologic studies in allergen-induced late-phase asthmatic reactions. J Allergy Clin Immunol 1984, 71:49-60.

Reprinted from *The Western Journal of Medicine*, January 1987.

ADVISORY PANEL TO THE SECTION ON ALLERGY

Harold Novey, M.D.
Advisory Panel Chair
CMA Scientific Board Representative
University of California, Irvine

Eli O. Meltzer, M.D.
CMA Section Chair
San Diego

Roger J. Barron, M.D.
CMA Section Secretary
Santa Rosa

Lawrence S. Mihalas, M.D.
CMA Section Assistant Secretary
Los Angeles

Allen L. Schwandt, M.D.
Loma Linda University

James L. Munson, M.D.
Loma Linda University

Abba I. Terr, M.D.
Stanford University

Norman Lewiston, M.D.
Stanford University

Stephen M. Nagy, Jr., M.D.
University of California, Davis

Gildon Beall, M.D.
University of California, Los Angeles

Douglas Heiner, M.D.
University of California, Los Angeles

Robert Hamburger, M.D.
University of Los Angeles, San Diego

Stephen Wasserman, M.D.
University of California, San Diego

Oscar L. Frick, M.D., Ph.D.
Section Coeditor
University of California, San Francisco

Edward J. Goetzl, M.D.
University of California, San Francisco

Zack Haddad, M.D.
University of Southern California

Mitchell Sollod, M.D.
San Francisco

Nathan Schultz, M.D.
Section Coeditor
Walnut Creek

Dx: recurrent herpes labialis

"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough.**" DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits.**" MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) . . . **response** was **dramatic. HERPECIN-L** . . proven **far superior.**" DDS, PA

"All patients claimed **shorter duration** . . . at **prodromal symptoms** . . . HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

AYR INSURANCE AGENCY

Sponsored by

The Connecticut State Medical Society

Featuring:

NEW - Non-Smoker Term Life Insurance

WITH NEW LOWER RATES

-ATTENTION-

If you currently have a Phoenix Mutual Term Life Certificate (with the former Irwin Schiff Agency) you should investigate this new offering.

Also Featuring:

Disability Income Insurance
Hospital, Surgical and Major Medical Insurance
Office Overhead Insurance

"Growing Bigger by Serving Better"

Alison Ayr	David Gould
J. Lauren Ayr	William Harrington

105 Sanford Street, Hamden, CT 06514
Telephone 288-4302

CONSENSUS DEVELOPMENT SUMMARIES:

Diet and Exercise in Noninsulin-Dependent Diabetes Mellitus

NATIONAL INSTITUTES OF HEALTH

Introduction

Diabetes mellitus is a major health problem. It is a leading cause of death. It is the chief reason for new blindness, for kidney failure, and for limb amputation. Dialysis for kidney failure from diabetes alone costs over $1 billion annually, and this is expected to double over the next few years. Moreover, diabetes is a major emotional burden for many families.

Noninsulin-dependent diabetes (NIDDM, also called adult-onset or Type II diabetes) affects about 10 million Americans, mid-age or older, or approximately 90 percent of all diabetic people. The cornerstone of therapy is a style of life centered around diet and supplemented, if needed, by insulin or oral agents. With the very high association of NIDDM with overnutrition and overweight (approximately 80 percent of patients), much dietary effort is directed to caloric reduction, with exercise as an auxiliary means to increase caloric loss and to assist in glucose regulation. The therapeutic aim is normalization of blood glucose and lipid levels with the hope of diminishing cardiovascular risk and preventing complications.

There has been much interest in recent years in clarifying the underlying relationships between NIDDM and obesity, heredity, nutrition, physical activity, and other factors. Much has been learned from clinical studies in individuals with and without NIDDM and from parallel studies in experimental animals. However, conflicting claims have emerged for the effectiveness of new dietary strategies and exercise programs. Many of these have been publicized in the professional and lay literature, and this has caused some concern and confusion. In an effort to resolve this problem, the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and the NIH Office of Medical Applications of Research, in collaboration with Institut National de la Santé et de la Récherche Médicale (INSERM), France, sponsored a Consensus Development Conference on Diet and Exercise in Noninsulin-Dependent Diabetes Mellitus, December 8-10, 1986.

The conference brought together researchers, clinicians, other health professionals, and representatives of the public. Following two days of presentations and discussion by invited experts and the audience, a consensus panel, drawn from the health care and diabetes-interested communities, weighed the scientific evidence and formulated a draft statement in response to several questions:

- What is the significance of excess body fat in the patient with noninsulin-dependent diabetes mellitus? How can weight reduction be achieved and maintained?
- What are the appropriate components of the dietary prescription for patients with noninsulin-dependent diabetes mellitus?
- What are the benefits and risks of exercise in patients with noninsulin-dependent diabetes mellitus? How should exercise be prescribed?
- What is the evidence that weight control, diet, and/or exercise can prevent noninsulin-dependent diabetes mellitus?
- What are the directions for future research?

1. WHAT IS THE SIGNIFICANCE OF EXCESS BODY FAT IN THE PATIENT WITH NONINSULIN-DEPENDENT DIABETES MELLITUS? HOW CAN WEIGHT REDUCTION BE ACHIEVED AND MAINTAINED?

There is strong evidence that NIDDM is genetically determined. Based on considerable epidemiologic data, it is apparent that obesity and aging promote the development of the disease in susceptible individuals. The prevalence of the disease increases steadily from the fourth decade. Individuals who are 20 to 30 percent overweight are clearly at an increased risk for NIDDM, and the risk accelerates with increased body weight. Data suggest that in addition to the degree of obesity, an increasing duration of obesity and the specific distribution of excess body fat are associated with the development of NIDDM. With regard to fat distribution, upper body or android obesity

---

From the Office of Medical Application of Research, National Institutes of Health, Bethesda, Md.

Reprint requests to the Office of Medical Applications of Research, Room 216, National Institutes of Health, Bethesda, MD 20205 (Michael J. Bernstein).

appears to be more strongly associated with diabetes than lower body or gynoid obesity. Individuals with a family history of NIDDM may develop the disease when they have only modest excess of body fat. These people should be assessed routinely for the presence of carbohydrate intolerance and encouraged to maintain desirable body weight.

Extensive studies demonstrate that obesity is characterized by insulin resistance. In the obese nondiabetic individual, the principal target tissues for insulin (liver, skeletal muscle, and adipose tissue) do not respond appropriately to those levels of the hormone found in nonobese individuals. The obese nondiabetic person can compensate for this impairment of hormone action by secreting increased amounts of insulin. Weight reduction in these nondiabetic individuals leads to reversal of insulin resistance and the return to a normal pattern of insulin secretion.

Pancreatic beta-cell dysfunction and insulin resistance are the cardinal pathophysiologic features of NIDDM. Both of these cellular alterations may be genetically determined. Although insulin resistance is present in the nonobese patient with NIDDM, associated obesity further aggravates the severity of impaired hormone action. Weight loss in the obese diabetic, as in the nondiabetic, ameliorates insulin resistance, and usually there is accompanying improvement in carbohydrate tolerance. Frequently, hyperglycemia is reduced when a low calorie diet is employed even before there is much weight loss. Furthermore, some studies have also shown modest improvement in beta-cell function when the blood glucose is lowered by diet or other means.

Some investigators are concerned that the hyperinsulinemia in NIDDM may contribute to the increased incidence of macrovascular disease. This possibility arises from the observation that the two most common conditions of hyperinsulinemia (obesity and NIDDM) are independently associated with increased cardiovascular risks. There are also data suggesting that the actions of insulin are not uniformly impaired in hyperinsulinemic states. Thus, it is possible that certain insulin-regulated, atherogenic processes may be accelerated in NIDDM with or without obesity. At present, the relationship between hyperinsulinemia and cardiovascular disease is largely speculative, and more definitive answers await additional investigation.

The cellular mechanisms of insulin action have been partially elucidated. There is universal agreement that insulin initiates its actions by interacting with specific receptors located on the surface of the target cell. The possibility that there is a receptor deficiency in human obesity and NIDDM has been extensively investigated. Most studies have examined the receptor status in readily available circulating monocytes or erythrocytes. The number of insulin receptors is often decreased in these cells, but the relevance of these findings to the major target tissues (liver, muscle, fat) for insulin action is not known. In fact, results of studies of insulin receptors in fat cells from individuals with NIDDM are conflicting, and studies are just emerging using human muscle and liver. The majority of investigators agree that cellular alterations, other than decreased receptor number, contribute to the insulin resistance of both obesity and NIDDM. Current areas of investigation include (1) functions of the insulin receptor subsequent to hormone binding, (2) the glucose transport process in muscle and adipose tissue, and (3) the status of those factors that may be the intracellular mediators of insulin action. Although the cellular alterations responsible for insulin resistance and beta-cell dysfunction in NIDDM are poorly understood, future studies of the beta cell and insulin action should provide new insights into the pathophysiology of this disease.

Blood glucose usually returns toward normal as weight loss occurs in the obese diabetic patient. Weight loss also improves hypertension, hypertriglyceridemia, and hypercholesterolemia. Achieving the goal of desirable weight is not easy. Twenty-five years ago, one-quarter of the patients who needed to lose 20 to 40 pounds were successful, and merely five percent lost more than 40 pounds. At that time, weight loss programs generally emphasized moderate caloric restriction and dietary counseling. Recently, several more successful strategies for weight loss have been developed. All these approaches continue to rely on reduced calorie ingestion. Although moderate caloric restriction (500 to 1,000 kcal below daily requirements) is preferred, fasts of several days duration and very low calorie diets (to 400-600 kcal intake per day) for several weeks have been successfully employed with careful medical supervision.

Other successful programs have utilized support groups, behavioral therapy, and/or exercise in combination with caloric restriction. In recent years, the public has become more aware of the health hazards of obesity. Low calorie foods and beverages are readily available, and health clubs exist in many neighborhoods. While all of these benefit those who need or desire to lose weight, weight reduction continues to be difficult. Furthermore, most individuals who lose weight will regain some or all of the lost weight.

A greater understanding and resolution of the pathophysiology and behavioral determinants underlying altered eating behavior are needed. While acknowledging the poor prognosis for weight loss maintenance, the panel recommends that most obese patients with NIDDM be maintained on diets moderately restricted in calories. Ideally, this diet should be associated with behavior therapy, group support, and nutritional counseling. An intensive support program of considerable duration may improve the likelihood of maintaining a desirable weight. Increased physical activity and, if appropriate, structured exercise programs are also considered useful adjunctive therapy.

2. WHAT ARE THE APPROPRIATE COMPONENTS OF THE DIETARY PRESCRIPTION FOR PATIENTS WITH NONINSULIN-DEPENDENT DIABETES MELLITUS?

In individuals with NIDDM, the primary goal for treatment is to reduce blood glucose levels to normal. The diet for all persons with NIDDM should be nutritionally sound, and it should satisfy the recommended dietary allowances (RDA) and follow the *Dietary Guidelines for Americans* (Home and Garden Bulletin #232, 2nd Edition, Washington, D.C.: USDA and HHS, 1985). Since most persons with NIDDM have excess body fat, the primary dietary treatment is reduction of weight through caloric restriction. Some people with NIDDM have additional medical problems (e.g., lipoprotein disorders and hypertension) that require additional dietary recommendations.

Calories

A weight-reducing diet should be nutritionally complete, using a variety of foods. Moderate caloric restriction of 500-1,000 kcal below daily requirements may be optimal in producing a gradual sustained weight loss. After the desired weight has been achieved, maintenance of that reduced weight may be sustained by adjusting the caloric intake. With low caloric intake, nutrient deficiencies should be avoided. For lean persons with NIDDM, caloric intake should be adequate to maintain body weight.

Fat and Carbohydrate

A diet reduced in total and saturated fat and cholesterol has been recommended for all Americans to decrease the risk of coronary heart disease (CHD). Patients with NIDDM are at increased risk for CHD by virtue of their diabetes. In addition, they frequently demonstrate blood lipid abnormalities, including reduced high density lipoprotein-cholesterol (HDL-C) and elevated triglyceride concentrations. The initial approach for normalizing serum lipids in the majority of patients with NIDDM is to reduce hyperglycemia because this will frequenly increase HDL-C and reduce triglyceride concentrations. High carbohydrate diets (50-60 percent of total calories) may effect these changes in some patients by enhancing insulin sensitivity. When blood glucose is normalized, the panel recommends that patients with NIDDM should further attempt to reduce their risk of CHD by reducing low density lipoprotein-cholesterol. Present recommendations for the general population include a reduction of total fat intake to less than 30 percent of calories, with saturated fat comprising less than ten percent of total calories. This may be suitable for some but not all NIDDM patients (as discussed below).

A reduction in calories from fat usually requires an increase in calories from carbohydrates. High carbohydrate diets may be harmful in some patients by reducing HDL-C and increasing triglycerides. These diets are less effective than weight loss in normalizing blood glucose and may represent a serious lifestyle alteration for many patients. Consequently, the panel suggests that patients' adherence to a regimen of caloric restriction for weight loss is more important than alterations in the macronutrient composition of the diet. Also, both serum lipid and glucose concentrations should be monitored to determine the effectiveness of any dietary changes.

Other Carbohydrate Issues

Sucrose (table sugar)

In the past, individuals with NIDDM have been advised to avoid sucrose. The use of sucrose as a taste additive in mixed meals is acceptable (up to five percent of carbohydrate calorie intake) in patients who are lean and do not have carbohydrate aggravated hyperlipidemia. The advisability of added sucrose intake above five percent of carbohydrate calories requires further investigation.

Fiber

Dietary fiber is plant material that is resistant to enzymes produced by humans. Most Americans consume 13 to 19 grams of dietary fiber per day. Some studies have suggested that dietary fiber is effective in controlling blood glucose and reducing plasma cholesterol, especially when used in very high carbohydrate diets (greater than 50 percent of calories); however, the results of these studies are inconclusive. Furthermore, high fiber diets may be less palatable, may require substantial changes in traditional eating patterns, may have effects on other nutrients, and may be contraindicated in patients with autonomic neuropathy.

Therefore, the panel reaffirms that the primary dietary intervention in NIDDM is weight reduction. However, if individuals desire to increase the fiber content of their diet, foods high in soluble fiber could replace some other carbohydrates. The use of purified fiber supplements is not recommended at this time for diabetes therapy.

Glycemic Index

Individual foods containing carbohydrate can have a high, medium, or low impact on postprandial blood glucose. This response can be quantified as "glycemic index." Several problems have been identified with the application of this methodology to the design of general guidelines of a dietary prescription for patients with NIDDM.

Many factors contribute to a different glycemic response from the same food. These include processing, cooking, and food storage time. Other considerations include the variable degree of mastication in the elderly with dental problems, the diurnal variation in absorption, and racial and ethnic differences. Some studies have shown diminution of glycemic effects when foods are combined in a mixed meal. For these reasons at this time the panel does not recommend the use of specific glycemic indices in the dietary therapy of patients with NIDDM.

Protein

There is no need to change the standard 12 to 20 percent protein content of the diet, providing RDA requirements are met, except in those who have specific problems in which protein intake should be reduced (i.e., in people with NIDDM who have renal disease).

Education

Different educational methods will be appropriate for individual patients and for varying ethnic diets. Whatever plan is used, intensive and frequent followup and support are needed until fasting euglycemia is achieved and maintained. Behavior modification and exercise may be combined with diet instruction to enhance weight loss efforts. Changes in diet need to be made gradually. No single educational tool can accommodate the needs of all individuals with NIDDM. When diet therapy alone is unsuccessful or unacceptable because of quality of life issues or failure to reduce hyperglycemia, then alternative euglycemic therapy is indicated.

3. WHAT ARE THE BENEFITS AND RISKS OF EXERCISE IN PATIENTS WITH NONINSULIN-DEPENDENT DIABETES MELLITUS? HOW SHOULD EXERCISE BE PRESCRIBED?

The effect of regular physical exercise alone on metabolic control in NIDDM is quite variable and frequently of small magnitude. Greater improvement in glucose homeostasis can usually be obtained by weight loss. Despite the relatively small impact of exercise demonstrated to date, regular physical exercise may be a therapeutic component supplementing diet in selected patients.

There is epidemiologic and clinical evidence that physical activity may reduce the incidence of coronary heart disease (CHD) in the general population. The risk-benefit ratio of exercise in NIDDM remains to be defined. Because many of the complications of NIDDM are related to atherosclerotic cardiovascular disease, an increase in physical activity for NIDDM patients appears prudent. This recommendation is made despite the absence of conclusive studies and with recognition that improvements in CHD risk factors may not occur in those with NIDDM. Furthermore, the consensus panel seeks to emphasize that the possible benefits of body fat reduction outweigh putative exercise effects.

Vigorous exercise appears to blunt the rise in blood glucose that follows carbohydrate ingestion. In addition, exercise training may increase insulin sensitivity, but this change appears to be an acute effect associated with recent exercise and is reversed within two to three days by physical inactivity. Physical activity may assist in reducing body fat, but exercise without caloric restriction appears ineffective. Patients who exercise regularly may negate its weight-reducing effects by curtailing their usual activities and by increasing caloric intake.

Complications of exercise in NIDDM patients include cardiac events (infarction, arrhythmias, and sudden death), bone and soft tissue injuries, and retinal damage in patients—particularly with proliferative retinopathy. The incidence of these complications with exercise has not been defined.

NIDDM patients should undergo a thorough medical evaluation prior to increasing physical activity. The components of the evaluation will vary depending on the severity and duration of the diabetes, the presence of complications, the likelihood of asymptomatic CHD, and the intensity of the activity.

Because of the possible risks of retinal detachment and vitreous hemorrhage during exercise in patients with retinopathy, exercise that requires straining and breath holding (such as weight lifting) should be discouraged. Special attention should also be given to care of the feet during exercise.

In planning and recommending an exercise program for NIDDM patients, health professionals should be aware of several factors. The threshold of energy expenditure required to reduce postprandial hyperglycemia and to enhance insulin sensitivity has not been defined. The same holds true for the use of physical activity in lowering the incidence of CHD. The panel believes that NIDDM patients should tailor an increase in their overall physical activity to their physical capacity, preferences, age, and lifestyle. Also, because many of the metabolic effects of exercise are short-lived, it is extremely important that NIDDM patients choose exercises that they are likely to engage in frequently and continue over their lifetimes.

4. WHAT IS THE EVIDENCE THAT WEIGHT CONTROL, DIET, AND/OR EXERCISE CAN PREVENT NONINSULIN-DEPENDENT DIABETES MELLITUS?

Approximately 80 percent of persons with NIDDM have excess body fat. Cross-sectional population-based studies show that the prevalence of NIDDM increases with increasing body weight and that the risk of NIDDM is particularly high among obese persons with a family history of this disorder. These relationships suggest that avoidance or elimination of obesity in people whose relatives have NIDDM may delay or prevent the development of NIDDM. Weight reduction is best achieved through the use of hypocaloric diets. In normal weight people, there is no evidence that manipulation of dietary constituents (e.g., reducing refined carbohydrates or increasing complex carbohydrates or increasing dietary fiber) influences the risk of NIDDM. The possibility that exercise may prevent NIDDM is suggested by the observation that prolonged strenuous exercise in individuals with NIDDM may normalize fasting blood glucose and glucose tolerance.

However, there are as yet no irrefutable data to demonstrate that weight control, dietary modification, or exercise are effective in preventing or delaying NIDDM. Nevertheless, in the opinion of the panel, it is prudent to maintain or achieve normal body weight in an attempt to minimize the risk of NIDDM in susceptible persons.

5. WHAT ARE THE DIRECTIONS FOR FUTURE RESEARCH?

Many of the issues discussed in this consensus conference need further research in laboratory, clinic, and community-based settings. The following major topics are suggested:

Questions Related to Obesity

- What is the etiology of the insulin resistance in the obese state?
- What is the etiologic basis of the obesity itself, from genetic, environmental, behavioral, and nutritional aspects?
- What are effective strategies for therapy of the obese state, particularly as it relates to diabetes?

Questions Related to Diabetes and its Prevention

- What is the etiology of the beta-cell deficiency in NIDDM?
- What is the pathophysiology of the insulin resistance in the diabetic state without obesity?
- What is the nature of the inherited component in NIDDM?
- What is the relative effectiveness of regular physical activity and/or weight control in the prevention and treatment of NIDDM and its complications?
- What are predictors for the eventual development of NIDDM?

Questions Related to Nutrition

- What is the relationship of particular diets such as high carbohydrate diets to glucose and lipid metabolism?
- What are the roles of other dietary alterations such as changes in fiber content, various carbohyrates, and other foods on carbohydrate and lipid homeostasis?
- What are the optimal strategies to improve acceptance of therapeutic regimens?

Questions Related to Exercise

- What are the potential mediators of exercise effects?
- Under what conditions and in which NIDDM patients is exercise likely to be effective in enhancing glucose homeostasis and reducing coronary heart disease?
- Under what conditions is exercise likely to be counterproductive?

Questions Related to Complications

- What are the contributions of hyperinsulinemia, obesity, and glucose control to the risk of complications in NIDDM?
- What are the relationships of the carbohydrate and lipoprotein abnormalities and their treatments to the risk of macrovascular disease in NIDDM?

Conclusion

Noninsulin-dependent diabetes mellitus (NIDDM or Type II diabetes) is a major health problem. It is highly correlated with obesity and, thereby, with overeating. Normal weight maintenance continues as the cornerstone of therapy with oral agents or insulin added, if needed, to maintain blood glucose normal or near normal. For overweight individuals, reduced-calorie diets should be prescribed, and attempts made to alter lifestyle within an acceptable degree for any given patient to encourage weight reduction. These alterations include increased physical activity, perhaps as prescribed exercise regimens, with the recognition that exercise alone is usually ineffective for weight loss unless accompanied by an appropriate diet.

Weight loss diminishes hyperglycemia to or toward normal. Exercise itself may have a small but transient direct effect in lowering blood glucose and insulin resistance. Various food combinations, and even different processing or cooking of the same foods, may produce different glucose responses. Incomplete information on these and other factors that affect this phenomenon in individual subjects minimizes the role of the glycemic index in overall diabetes management. Similarly, foods high in soluble fiber may diminish glucose elevation after meals and may be of use in individual patients, but high-fiber foods appear to be less important than adhering to a calorie-restricted diet and achieving weight loss in the obese diabetic person. Approximately four out of five patients with NIDDM are significantly overweight, and the panel's attention was focused on this group throughout their deliberations. Specific recommendations for diet and activity in the normal weight NIDDM patient were not addressed except for endorsement of a lifestyle that avoids the development of obesity.

Finally, it appears prudent to prevent or reverse obesity, especially in individuals with a family history of diabetes, in the hope that the onset of diabetes may be prevented or postponed.

Members of the Consensus Development Panel were the following: George F. Cahill, Jr., M.D., Panel Chairman, Bethesda, MD; Elsworth R. Buskirk, Ph.D., University Park, PA; Linda M. Delahanty, M.S., R.D., Boston, MA; Stefan S. Fajans, M.D., Ann Arbor, MI; James B. Field, M.D., Houston, TX; Harmon E. Holverson, M.D., Emmett, ID; Joan Williams Hoover, Washington, D.C.; Ralph I. Horwitz, M.D., New Haven, CT; Kathryn Iacocca Hentz, New York, NY; John M. Lachin, Sc.D., Rockville, MD; Dean H. Lockwood, M.D., Rochester, NY; F. John Service, M.D., Ph.D., Rochester, MN; Paul D. Thompson, M.D., Providence, RI; Madelyn L. Wheeler, M.S., R.D., Indianapolis, IN.

Members of the planning committee were: George F. Cahill, Jr., M.D., Bethesda, MD; Eveline Eschwege, M.D., M.P.H., Villejuif, FRANCE; Phillip Gorden, M.D., Bethesda, MD; Van S. Hubbard, M.D., Ph.D., Bethesda, MD; F. Xavier Pi-Sunyer, M.D., New York, NY; Martin Rose, M.D., J.D., Bethesda, MD; Robert Sherwin, M.D., New Haven, CT; Robert E. Silverman, M.D., Ph.D., Chairperson, Bethesda, MD; Simeon I. Taylor, M.D., Ph.D., Bethesda, MD; Georges Tchobroutsky, M.D., Paris, FRANCE; Judith Wylie-Rosett, Ed.D., Bronx, NY.

CNA has a longstanding commitment to medical malpractice protection.

The CNA Insurance Companies have been committed to providing quality malpractice insurance for over 15 years. And we've kept this commitment even through the years of malpractice crises.

One reason we're able to honor that longstanding commitment is our financial strength. CNA has grown to the 14th largest insurance organization. And, we're now one of the largest malpractice insurers. By protecting thousands of medical professionals, we have solid expertise in underwriting, claims service and legal defense.

We've made a commitment to offer comprehensive, quality medical malpractice protection to meet the needs of physicians. For more information, contact the CNA program administrator today.

A.A.W. Physicians Plan, Inc.
225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The CNA Physicians Protection Program is underwritten by Continental Casualty Company, one of the CNA Insurance Companies.

CNA
For All the Commitments You Make®

View from the Hill

JAMES E. BRYAN

The new year 1987 brought us a rare natural phenomenon, a decisive shift of power in Congress, a self-inflicted wound for the Executive Branch, and a deepening crisis in our national budget and trade balances.

The dawn of a new year inspires—or prods—humans of every stripe and condition to cast up their balance sheets, reassess their goals and check their courses. It is said that the zealots redouble their efforts as they lose sight of their goals.

In six decades of active association with the medical profession, I cannot recall a time when American medicine was confronted with as many complex, urgent problems as it is today. On the positive side, I do not remember a time when the profession seemed as willing and able to view its prospects as objectively and take into account its public responsibilities as capably as it is today.

Medicine, as science and as art, is dedicated to serve human needs. American medicine—though practiced in a society whose "business is business"—has always been viewed by both patient and physician not as a market commodity but as an intimate, vital human service, access to which is accepted as a universal human right, as basic as food for sustenance or air for breathing.

One of the modern medicine's special gifts to humankind has been the extension of the average life span by 25 years since the turn of the century. But that gift of longevity has radically altered the center of gravity in medical practice and in American socioeconomics. It has imposed an evergrowing burden on younger generations for the support and maintenance of their elders, and for the liberation of the younger generation from traditional obligations to their elders.

The American economy, under strictures imposed by current political-economic ideologies, has sought to keep our growing society funtioning on ever-shorter rations. In the name of public economy, we have engendered a great deal of private deprivation, effectively ignoring the requirements of some 15 percent of American citizens for independent access to needed health care. At the same time, politicians have tried to impose the profit-oriented spirit and practices of the commercial economy on a profession proud of its human service mission, while seeking to retain its professional autonomy.

American industry, reeling under the competition of foreign producers and traders, has been compelled to contain, if not reduce, its costs for employee health care service, long since accepted as a basic prerequisite of industrial employment.

Government, as a major buyer of health services under its huge entitlement and welfare programs, has only recently found a formula, through DRGs, to reverse the entire structure of incentives, which for nearly two decades powered a dauntless spiral of rising health care costs. The DRG reimbursement schedules apply prospectively to hospital services for Medicare patients, while physicians' fees are subject to their negotiations and commitments to Medicare and other payers. The DRG device has triggered conflict between the concerns of patient and physician on the one hand, and the financial interests of the hospital on the other.

Now, the profession confronts and inevitable effort by the Administration to bring the physician's charges under DRG-like limitations, either through a fee schedule or by allocating a portion of an augmented hospital DRG allowance to pay for medical services rendered to the hospitalized patient. This proposal was roundly rejected by the American Medical Association, and a modified version—to apply the augmented DRG payment only to the services of radiologists, pathologists and other "hospital-based" physicians—fared no better with organized medicine. The AMA is right to be concerned about the corrosive dangers of "fee-splitting," and has condemned attempts by certain hospitals to "bribe" the partronage of physicians by offers to share with them DRG allowances for the hospital care of their patients.

The tightening stringency of public funds to meet federal commitments to patient care under Medicare and Medicaid—with reasonable reimbursement of professional service—has engendered mistrust between physicians and hospitals, and introduced an unwelcome, unwholesome source of misunderstanding between physicians and their patients.

Others have observed that every major medical advance seems to generate new problems in medical ethics. Many ethical problems confront physicians, their patients and, frequently, society and the courts today: agreements by HMOs and preferred provider organizations (PPOs), re-

---

JAMES E. BRYAN, Washington Correspondent, *American Family Physician.*

Reprinted from *American Family Physician.* Copyright 1987 by American Academy of Family Physicians.

quiring member-physicians to limit care and to cut costs, often conflict with the physician's prime commitment to the patient; uses of intensive care are frequently disputed; optimal use of "big-ticket" diagnostic technology is questioned; decisions are required concerning the withdrawal of life-sustaining treatment for the terminal patient or the initial care of a "Baby Doe"; the claims of "surrogate parents" create new dilemmas, and the increasing possibilities for organ transplants involve a universe of problems.

Physicians now appear to have more decisions, more options of procedure, and more potential sources of conflict with patients and society than ever before. Ironically, although some of these decisions seem to require that the physician revert to the ancient role of priest and counselor, other issues appear to demand a degree of technical expertise or a depth of legal insight rarely found even among those rare specimens holding degrees in several fields. At the very least, as most physicians are keenly aware, clinical decisions always have technical and moral components, and frequently also have legal consequences.

In the area of litigation, there is room for some optimism. *American Medical News* recently noted that various cases before the Supreme Court have been decided in a way which strengthens the principle that physicians who legitimately act in the best interest of their patients cannot be said to be acting in restraint of trade in the health field. If true, this is welcome news to one who recently sought, in direct discussion with FTC attorneys, to persuade them that efforts of organized medicine and Blue Shield to encourage ethical practices and penalize questionable ones – or to favor the patronage of participating physicians in "service-benefit" agreements – produced social benefits outweighing any "restraint-of-trade" faults.

The courts have blocked the efforts of nonphysician providers to force their way into hospitals on an equal basis with physicians. The projected program of the Joint Commission on Accreditation of Hospitals to assess "clinical outcomes" should strengthen the profession's effort to limit hospital practice to qualified physicians.

In the area of malpractice litigation, the profession has had modest success in encouraging enactment of new laws in many states, particularly statutes limiting "noneconomic" injury awards. But much further legislation is needed at both the state and federal levels. Legislators are urging the profession to exert greater effort to enlist public interest and support for legislation in this area, which is clearly as much in the public interest as in that of the profession.

The great underlying ethical issue confronting both medicine and society today is embodied in these questions: Is medicine a profession or a business? Is medical care a fundamental right or a commodity in commerce?

HMOs and PPOs are finding their "hard-ball" competition shifting from small units to larger ones. And, though HMOs claim a national enrollment in the neighborhood of 23 million, the proliferation of plans is outpacing the rate of enrollment growth. This results in price wars and expensive promotion efforts. In New York City, an HMO costs $18 million to launch. Many HMOs are going over to investors, but their earnings have faded as costs have risen. Hence, there is a tendency to huddle together in mergers or "joint ventures."

Now, it is rumored that many HMOs are moving toward the "big enchilada" – a nationwide prepaid system to serve big corporations and such federal programs as CHAMPUS (Civilian Health and Medical Program of the Uniformed Services), which are said to be looking for a provider that can serve all their far-flung members through a single contract.

This suggests that the professional nightmare of a single, gigantic, private, investor-owned, profit-oriented national health insurance plan, underwritten by private industry and government, may be our fate. But will the unemployed, uninsured and unentitled still be left to their own devices?

A federal scheme to switch Medicare clients to HMOs has gone nowhere as yet. The Administration's proposal of January 12, which would require employers offering employee health plans to contribute as much to the premiums for HMO plans as they do for fee-for-service programs optionally available to their employees, is not calculated to spur HMO enrollment among these worker-groups.

HMOs are reported to be dubious of the profitability of underwriting Medicare clients. Many HMOs have tended to shrink from Medicare enrollment because of the shifting eligibility of the Medicaid population and the undependable level of federal support. Humana's for-profit HMO plans and the not-for-profit Kaiser Permanente operations are both in various kinds of trouble.

By contrast, independent practice associations (IPAs), according to *American Medical News*, are "spreading like prairie fires across the country." The Medical Association of Georgia has signed up 40 percent of its members in a state-wide IPA; in 1986 approximately 50 other medical societies sponsored IPAs. It is generally conceded that IPAs have better control over quality than corporate HMOs. Certainly, IPAs offer both patient and physician greater freedom of choice, privacy of service and clearer mutual responsibility than HMOs or PPOs.

Although we are not aware of any research or formal investigation of the special stress factors involved with DRG limitations on admission, readmission, length of stay in hospital, denial of access or "dumping" of uncompensated patients by hospitals, a recent nationally televised program on these subjects described the depth of stress suffered in these circumstances as serious – especially for the sickest and least fortunate patients.

Already a new realism seems to exist in Congress, a more candid acknowledgment that our society is plagued with many faults and problems that will not be solved by cheery mottoes, and – best of all – an implicit recognition that "we are all in this together."

Buspirone: A Non-Benzodiazepine for Anxiety

THE MEDICAL LETTER

Buspirone HCI (*BuSpar* - Mead Johnson), a new chemical entity unrelated to the benzodiazepines, was recently approved by the US Food and Drug Administration for oral treatment of anxiety.

MECHANISM OF ACTION – Buspirone's mechanism of action is unknown. It does not have muscle relaxant, anticonvulsant, or hypnotic activity and does not bind to benzodiazepine receptors. It can bind to dopamine and serotonin receptors (KL Goa and A Ward, Drugs, 32:114, 1986; AS Eison and DL Temple, Jr, Am J Med, 80 Suppl 3B:1, 1986).

PHARMACOKINETICS – Buspirone is rapidly and completely absorbed from the gastrointestinal tract, but undergoes extensive first-pass metabolism. Food increases bioavailability by delaying absorption and decreasing first-pass metabolism. The average elimination half-life is about two to three hours. The drug is partly excreted in urine, almost entirely as metabolites; one hydroxylated metabolite is pharmacologically active and has a half-life of about 4.8 hours. Buspirone is highly protein-bound; it does not displace some other highly bound drugs, such as warfarin (RE Gammans et al, Am J Med, 80 Suppl 3B:41, 1986) but, according to the manufacturer, does displace digoxin.

CLINICAL TRIALS – Several double-blind, four-week flexible-dose studies found buspirone as effective for treatment of generalized anxiety disorder as diazepam, alprazolam (*Xanax*), clorazepate (*Tranxene*), or lorazepam (*Ativan*), and more effective than placebo (JP Feighner et al, J Clin Psychiatry, 43 [12 Sec 2]:103, 1982; HL Goldberg and R Finnerty, J Clin Psychiatry, 43 [12 Sec 2]:87, 1982; K Rickels et al, J Clin Psychiatry, 43 [12 Sec 2]:81, 1982; JB Cohn and CS Wilcox, J Clin Psychiatry, 47:409, Aug 1986). Buspirone was also similar to diazepam or clorazepate in relieving depressive symptoms in anxious patients.

One study found diazepam in 13 patients more effective than buspirone in 43 patients in relieving anxiety and depressive symptoms during the first two weeks of treatment, but the two drugs were equivalent by the end of the fourth week (AF Jacobson et al, Pharmacotherapy, 5:290, 1985). A three-week crossover trial found diazepam (20 mg/day) more effective than buspirone (20 mg/day) or placebo in 33 patients with chronic severe anxiety (D Olajide and M Lader, in GD Burrows et al, eds, *Clinical and Pharmacological Studies in Psychiatric Disorders,* London:John Libbey, 1985, p 121). Patients who have previously taken benzodiazepines may be less likely to respond to buspirone than those who have not (E Schweizer et al, N Engl J Med, 314:719, 1986).

ADVERSE EFFECTS – Most anxious patients who have taken buspirone have not complained of adverse effects. The incidence of drowsiness generally has been similar to that reported with placebo. Dizziness, headache, nausea, diarrhea, and paresthesias can occur. Driving is not impaired by buspirone, and the drug apparently does not add to the adverse effects of alcohol on driving skills (A Smiley and H Moskowitz, Am J Med, 80 Suppl 3B:22, 1986). Buspirone also does not impair daytime wakefulness or performance (WF Seidel et al, Psychopharmacology, 87:371, 1985), interfere with cognitive function, or add to the depressant effects of alcohol or other drugs on the central nervous system (T Seppälä et al, Clin Pharmacol Ther, 32:201, 1982; CW Erwin et al, J Clin Psychopharmacol, 6:199, August 1986). Since buspirone can bind to central dopamine receptors, the possibility of tardive dyskinesia with longterm use should be kept in mind. Safety in pregnancy has not been evaluated.

POTENTIAL FOR ABUSE – The euphoria that some patients experience with benzodiazepines apparently does not occur with buspirone; on the contrary, some patients complain of nervousness and restlessness. Dysphoria has been reported with high doses (JD Griffith et al, Am J Med, 80 Suppl 3B:30, 1986; JO Cole et al, J Clin Psychiatry, 43 [12 Sec 2]:69, 1982). Withdrawal symptoms or rebound anxiety have not been observed when the drug was discontinued, and some investigators have concluded that the drug has little potential for abuse. Unlike the benzodiazepines, buspirone is not a controlled substance.

DOSAGE AND COST – The starting dosage of buspirone, usually 5 mg tid, can be increased by 5 mg/day at intervals of two to three days, to a maximum of 60 mg; 20 to 30 mg per day was used in most clinical trials. *BuSpar* costs the pharmacist $9.35 for seven days' treatment with 5 mg qid, according to *Drug Topics Red Book,* 1986.

CONCLUSION – Buspirone appears to be effective for short-term treatment of anxiety, without causing sedation or functional impairment. The drug can cause restlessness and may require one to two weeks for a therapeutic effect. Its long-term effectiveness and safety remain to be determined.

Reprinted with permission from *The Medical Letter,* Vol. 28, December 5, 1986.

Five Poems and One Verse

GAIL ALLYN GAINES, M.D.

Whose Body Is It?

Robert, with his head pounding the perineum
To no avail,
His mother lying dazed with pain,
Awaiting the knife,
Hovered at the will of the spouse
Whose chattel she was.
Robert's father, unavailable and
Said to be in church,
Praying for deliverance,
Lay stuporous in the local bar
Drowning HIS pain.
Robert, now six feet four inches
Lives physically resplendent,
With his mind suspended
At the age he was
When he tried so desperately
To reach the world and couldn't.

Friends of the Bosom

Pain and I are friends of the bosom
    So close we lie
        At night
    So close we sit
        Or walk by day.

Pain I would miss as no breathing
    It would be as a lie, an untruth or not believing
    But it is there.

Sometimes I can distract it.
    Or at least I think I do.
Intensity may fluctuate...but this deceit
Can never be throttled or completely negated.

It is there with the faithfulness of a lover,
    Eternal, incapable of denial.
Perhaps at times on trial; but always
    Innocent, never guilty.
    Exonerated
    Always true to me.

GAIL ALLYN GAINES, M.D., retired, December 1985; formerly Attending in Psychiatry, Waterbury Health Center, Waterbury, CT. Life Fellow, American Psychiatric Association.

This is the second issue in which we have published poetry by Connecticut physicians. I hope that more than a few of our readers share my delight in this new undertaking. At the wise suggestion of the Literary Editor, we shall discipline ourselves and our poets to three issues each year. – Editor.

The Regency Revisited

Georgie Rex of all Deliria
Suffered from the rare porphyria.
He could be verbose and jolly
Then in a trice be melancholy,
Strolling in his gardens fair
Or a trussed turkey in a chair.
At the hands of Aesculapians
No treatment could poor George escapians.
Thus he was ever cupped and seared,
Then he was bled and even beered.
Nothing could stop that fountain
Of verbiage piled like a mountain.
Manickyness he had for certain
And the melancholy of Burton.
On this madness hung the thread
Of nations vast or crudely bred.
Of the madness all were sure
But the outcome was obscure.
Medicos lost in Alpine thought
Never looked into the pot.
If only they had been more earthy,
Less concerned with higher birthy,
Or if more conversant with mops
And chaps who emptied out the slops,
They would have arrived as Ida and Dick
At a far and better trick.
Tracing out with gene-flections
All the familial disaffections.
George B's wine drunk from a skull
Seems mundane and rather dull
When you stop and give some thought
To Georgie's wine-red chamber pot.

Georgie's subjects, George and Southey
Celebrated though they be, and mouthey
And, at times, a bit uncouthey
Never knew Georgie's long deliria
Sprung from the rarity of porphyria.
Bob was all pomp and circum
George was almost out to Burke um.

But what everybody forgot
Was just to look into the pot.
We know a watched one never boils
But in *this* one lay the spoils
For the authors Dick and Ida
And old Random House beside a.
Presentations of old Britannia
Point with pride at Georgie's sania,
Lost in the halls of megalomania
He never was, forbid, insania.
He suffered now they say in Illyria
From medically sanctified PORPHYRIA.

Delerium Cordis
1972

The heart is a tatterdemalion,
In which non-one-fiber-parallels-the-other.
It is an irrational rete of regret.
It is not like Shelley's "caverns of the mind"
Nor Chaucer's "celles fantastik."
The heart is a mesh of mish-mash
Where small souls struggle
And large souls drown.

OH, DADDY DUDLEY, WHERE IS THE PACE
  MAKER?
    OH, DADDY DICKY, WHERE IS THE PEACE
      MAKER?
        OH, DADDY WARBUCKS, WHERE ARE
          YOU?

The Aging

Is aging a gradual loss of curiosity?
When we watch the sea with its rearing,
Shearing, tearing, goring away of the sands and rocks;
Going with the tide away, away...

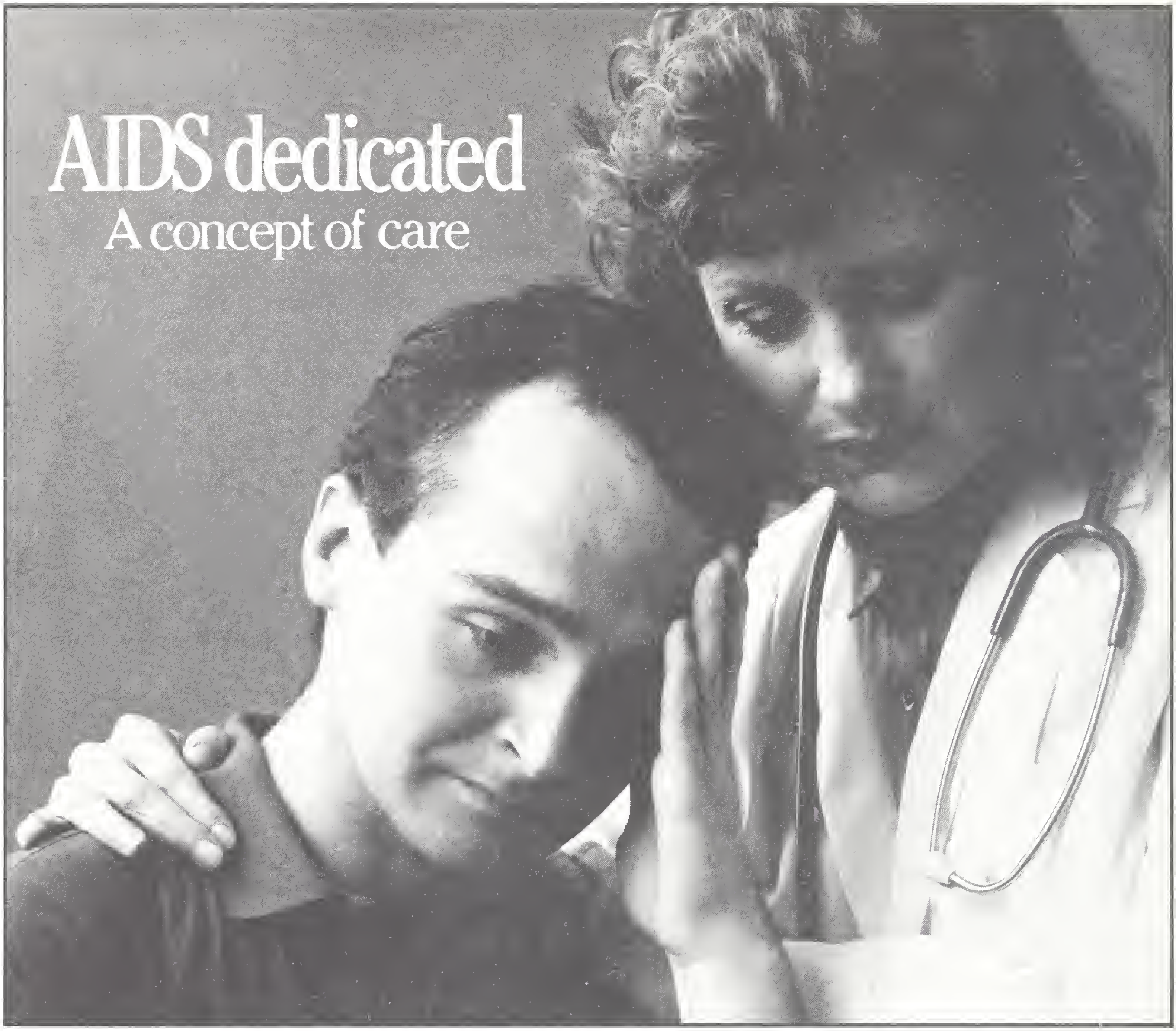
We may not ask, "Where is away?"
Our age and impotence obviate any asking.
Only a child may.

What joy to hear a child say,
"Where is away?"
Since we who are going need no longer enquire.

Olimbiclimbo!

The anxious paths which must gyrate
The arcus of the mind
The anxiousness of openness
The mammae of the kine;

Oh, hope-alous, amyg-da-less
The campus of the hippo
The fornix of the sub-callose
May prove another gippo!



Photography by Ken Nahoum

AIDS is a complex disease, assaulting the psyche as well as the body. The Spellman Center for the Treatment of Persons With AIDS treats both. A comprehensive medical facility, Spellman is devoted to the care of those suffering from Acquired Immune Deficiency Syndrome.

Respect for individual dignity guides the Spellman program. Staffed by trained personnel dedicated to working with AIDS patients, the Center includes family and friends in the management of the patient's health crisis. Spellman also operates a 24-hour information hotline at 1-800-433-AIDS.

For criteria on admission and referrals, please contact the Medical Director, at **1-212-307-0735**. Spellman is a division of St. Clare's Hospital and Health Center, designated the first AIDS treatment center by New York State.

The Spellman Center
for the Treatment of Persons With AIDS
St. Clare's Hospital and Health Center

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

Medical experts,
providers of care

Editorials

Neurofibromatosis: 1977-1987

The issue of *Connecticut Medicine* devoted to neurofibromatosis (NF) represents an example of the explosion of interest on the part of the medical and scientific communities in a disorder which only ten years ago was considered an obscure syndrome confined to a few unfortunate families. The visibility of NF as an important medical and scientific problem has largely developed through the efforts of a group of concerned families of patients with NF who organized the National Neurofibromatosis Foundation in 1978. Since then, a number of multi-specialty clinics devoted to NF have developed at university teaching hospitals around the country and several research groups have turned their attention to the problem of NF.

The National Institutes of Health has sponsored a research-oriented workshop on NF and is planning a clinically oriented meeting. The National Institutes of Neurological and Communicative Disorders & Stroke has issued a request for applications on the phakomatoses, a group of predominantly genetically determined disorders among which NF is by far the most common. The first major international meeting on NF was held in 1985 under the sponsorship of the New York Academy of Sciences.[1]

In addition to advocacy on the part of a responsible and effective lay organization, the burst of activity in NF is also due to two other factors: The first is the fact that NF is relatively common, with an estimated incidence of one in 3,000 live births and an estimated prevalence of 30 per 200,000, which means that approximately 100,000 Americans have NF. Failure for many years of the medical community to realize how common NF actually is can be attributed to the wide variety of manifestations of this disorder. Patients with NF may fall under the care of geneticists, adult and pediatric neurologists, dermatologists, and a wide variety of surgical sub-specialists. An unfortunate result of the increasing specialization of medicine has been that each specialty typically sees only those few patients with NF who have problems in its area and, therefore, considers NF to be rare. Of the 20 or more NF clinics in various phases of development in the U.S., it is not uncommon for those in operation for several years to have a patient roster of 500 to 1,000.

The second major reason for the increasing interest in NF is that it represents an extraordinary area of opportunity for neurobiologists, molecular geneticists, and researchers interested in the genetic predisposition to cancer. The discovery of receptors for nerve growth factor on Schwann cells derived from neurofibromas has led to the development of a technique for isolating, identifying, and growing them in tissue culture.[2] The recent finding of glial growth factor activity in bilateral acoustic neuromas may be an important clue to the cellular proliferation characteristic of this disorder.[3] Perhaps the most exciting discovery to date is that reported by Bernard Seizinger of Harvard Medical School, a fellow of the National NF Foundation, and colleagues, in *Nature*, that acoustic neuromas are characterized by loss of genes on chromosome 22.[4] If such specific chromosomal defects are found in bilateral acoustic neuromas and other neuronal tumors common to NF, a common pathogenetic mechanism for tumorigenesis in NF may exist. The existence of such suppressor genes, or recessive anti-oncogenes, raises the theoretical possibility of an eventual treatment for NF through the purification and utilization of such suppressor genes and/or their products. The change in status of NF from an obscure and overlooked disorder to an important experimental model for molecular biologists in only a decade represents a modern scientific and medical success story. If the momentum of research and clinical endeavors on NF continues at the same rate over the next decade, it will be a very exciting time for everyone with an interest in this disorder.

Allan E. Rubenstein, M.D.

Allan E. Rubenstein, M.D., Associate Professor of Neurology Mount Sinai School of Medicine, New York City, Medical Director; National Neurofibromatosis Foundation.

REFERENCES

1. Rubenstein AE, Bunge RP and Housman DE, ed: Neurofibromatosis. Ann NY Acad Sci 1986, New York.
2. Sonnenfeld KH, Bernd P, Rubenstein AE, et al: Nerve growth factor binding to cells derived from neurofibromas. Ann NY Acad Sci 1986, 486:107-114.
3. Brockes JP, Breakefield XO and Martuza RL: Glial growth factor-like activity in Schwann cell tumors. Ann Neurol 1986, 20:317-321.
4. Seizinger BR, Martuza RL and Gusella JF: Loss of genes on chromosome 22 in tumorigenesis of human acoustic neuroma. Nature 1986, 322:644.

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

Extended Support for the Neurofibromatosis Patient

The Connecticut Chapter of The National Neurofibromatosis Foundation, Inc. serves in conjunction with The National Foundation as a resource for those people in Connecticut affected by neurofibromatosis (NF). The Connecticut Chapter, located at 54 Shaker Court, Guilford CT, 06437, (telephone 203-453-0635), was incorporated in January of 1985. The National Foundation was conceived in 1978 and is located at 141 Fifth Avenue, Suite 7-S, New York, New York 10010, (telephone 1-800-323-7938).

The mutual goals of the Connecticut Chapter and National Foundation are:

1. To provide support, information, and guidance to families and individuals affected with NF.
2. To promote and support research to find the cause and cure for neurofibromatosis.
3. To educate the medical and health professional, the lay community and our public servants, and act as a resource on neurofibromatosis.

Our state chapter is happy to accept calls from persons with NF or from NF family members to provide support and guidance as needed. We welcome calls from physicians treating patients with neurofibromatosis and are available to work in conjunction with them. We presently have a cooperative relationship with the Neurofibromatosis Clinic at Yale-New Haven Hospital and with the genetic clinic at The University of Connecticut Health Center.

The National Foundation's prestigious Medical Advisory Board, headed by Dr. Allan Rubenstein of Mount Sinai Hospital in New York City, (see editorial this issue) is responsible for allocating the Foundation's research funds and encourages grant applications. In addition, in 1986 three NF Research Fellowships were funded on an annual basis. The Connecticut Chapter has taken an active role in the solicitation of research funds. Last year $22,000 was raised for that purpose.

The educational goals of the Connecticut Chapter have been generously supported by the Advertising Club of Greater Hartford, as well as the Developmental Disabilities Council, and the M.B.I. Inc. Educational materials, with updated facts on NF, will be distributed to 5,125 Connecticut physicians, all Connecticut school nurses, and to every Connecticut public library. The goal of this mailing is to educate health providers about the presentation of NF and its potential complications. In this manner early diagnosis will be facilitated and some complications prevented.

The volume of *Connecticut Medicine* can be filed with your professional package.

Betty A. Bonus, BSN

President, Connecticut Chapter of the National Neurofibromatosis Foundation, Guilford, CT.

New Concern for an Old Disease

Neurofibromatosis (NF) has never been high on the list of major diseases, yet, with an incidence of one in 3,000 live births, about one third that of Down's syndrome, it is no medical rarity. Popular and even textbook portrayals have generally exaggerated the more striking and disfiguring manifestations of this heterogenous disorder without providing guidance for the management of NF patients and for counselling their families.

The first full description of this disease was that by Friedrich Daniel von Recklinghausen (1833-1910) who contributed his paper, "Über die multiplen Fibrome der Haut und ihre Beziehung zu den multiplen Neuromen," in a *festschrift* honoring Rudolf Virchow on the occasion of his teacher's sixtieth birthday in 1882. The author of *Cellular Pathology* had himself described the disease in 1863, giving it the name of "fibroma molluscum," likening it to elephantiasis, and failing to recognize that these tumors involved nerves. There had been earlier clinical descriptions, even including one by Ambrose Paré; representations in drawing and sculpture had appeared as early as the 15th century.[1]

Victor Hugo's Quasimodo, the bell-ringer of Notre Dame, may, according to Solomon,[2] have had neurofibromatosis; he makes a convincing case for this diagnosis, pointing out that the hunchback's deformities involving skeleton, skin, and nervous system, "correspond quite well to what was to be fully described 51 years later—."

The Elephant Man and Other Reminiscenses, written by Sir Frederick Treves and published in the year of his death, 1923, had been almost forgotten until the anthropologist Ashley Montagu republished the eminent surgeon's account of John Merrick's life (now known to have been Joseph Merrick, but that is another story) in his book, *The Elephant Man: A Study in Human Dignity.* Treves, who had been surgeon to Edward VII, had rescued Merrick from a degrading existence and had given him friendship and loving care at the London Hospital during the last 3½ years of his unfortunate life. He died in 1890.

Treves's book has since been republished; several plays based upon it and a successful film version of Merrick's life have retold this story of human dignity, which, of course, was also the theme of Hugo's *Hunchback of Notre Dame.*

Perhaps the popularization of this disease, which may affect as many as 100,000 Americans, has helped to awaken our interest and inspire our concern for those unfortunately afflicted. We are grateful to Dr. Arthur T. Rosenfield for suggesting that this issue of *Connecticut Medicine* be devoted to NF and for his agreeing to serve as Guest Editor, responsible for bringing these articles together.

R.U.M.

REFERENCES

1. Zanca A, and Zanca A, Antique illustrations of neurofibromatosis, Int'l Jour Derm 1980, 19:55-58.
2. Solomon LM, Quasimodo's diagnosis, JAMA 1968, 204:190-191.

The President's Page

Professionalism

In February, I was once again privileged to attend the AMA Leadership Conference in Chicago. This has to be one of the best meetings that I attend each year. The topics are timely, the speakers dynamic and the audience attentive; we have patterned our own leadership conference after this meeting.

I was most impressed this year by the remarks given by Alan R. Nelson, M.D., Chairman of the AMA Board of Trustees. His concern was that of physician professionalism. He noted that the Hippocratic writings included, "Declare the past, diagnose the present, foretell the future. Practice these acts. As to diseases, make habit of two things—to help, or at least to do no harm." The quotation continues: "The art has three factors: the disease, the patient, the physician."

Dr. Nelson pointed out that there is much more involved today than the disease, the patient, and the physician. Now there are organized medicine, third-party payers, and complicated government regulations and interventions, in addition to malpractice suits and cost containment rules. With advanced technology, increased competition, and the potential for fragmented care, there is great potential for conflict of interest within our profession. He pointed out that society now holds considerable negative sentiment toward physicians in general and has subjected us to significant penalties through imposition of sanctions by government, terror in the courts of law, and restrictions on our ability to initiate fair increases in our fees to cover our increased costs.

In medicine, the tenet that financial interests should not interfere with the physician's medical judgment on behalf of the patient is ancient and is exemplified in Maimonides Prayer (*circa* 1190): "Do not allow thirst for profit, ambition for renown, and admiration to interfere with my profession for these are the enemies of truth and can lead me astray in the great task of attending to the welfare of your creatures."

Dr. Nelson stated that from Hippocrates to Maimonides, and throughout our history, our profession has been rewarded with greater or lesser confidence and esteem by society according to how closely we adhered to the essential elements of professionalism.

The elements of professionalism embrace three commitments, according to Dr. Nelson. First, commitment to a rigorous educational process that continues throughout a professional career. Our patients expect us to remain proficient in our science, and most of us meet their expectation to an amazing degree.

A second essential element of professionalism is the commitment to engage in professional self-regulation to assure the quality of service.

The third and most important essential element of professionalism is always to place the patient's well-being above our own financial self-interest. This is particularly important to remember in light of the increasing potential for conflict created by joint ventures, pressures to engage in marketing, and the development of new technologies with accompanying opportunities for entrepreneurialism.

It is Dr. Nelson's contention that we are now in a critical period as society tries to decide whether medicine is an economic good or whether medicine is a social good. He feels that we are now being challenged to reaffirm, as never before since the beginning of the scientific era and perhaps never again to the same degree, that we will continue to place our patients' welfare above our own financial self-interest.

You might ask what Dr. Nelson means by medicine as an economic good and a social good? He stated that the view that personal health care is an economic good holds that it is much like other consumer goods, is subject to market forces, and that the operation of the profit motive in medicine is largely beneficial. Proponents hold that competition produces a better outcome than does regulation. The role of the government is to regulate in ways that foster competition and to underwrite the care of the indigent. With this assumption, patients or payers who continue to assume that health care providers will subordinate their own interest to the patient's interest become vulnerable to exploitation.

The concept that health care is a social good holds that health professionals should pursue those goals and ideals which direct them to apply biomedical science and technology on behalf of patients, whether or not it is profitable to do so. While the pursuit of such goals may incidently produce behavior that the market will reward, the behavior is not motivated by the market.

Dr. Nelson went on to question how we rationalize what we see occurring as the trends toward corporatization, considering medicine as an economic good, threaten to undermine the traditional ethics that regard medical care as a social good. He stated that we have to incorporate the beneficial aspects of "medicine as an economic good," such as the positive effects of competition and freedom from external regulation, with the human commitment to our fellow man that is the essence of "medicine as a social good."

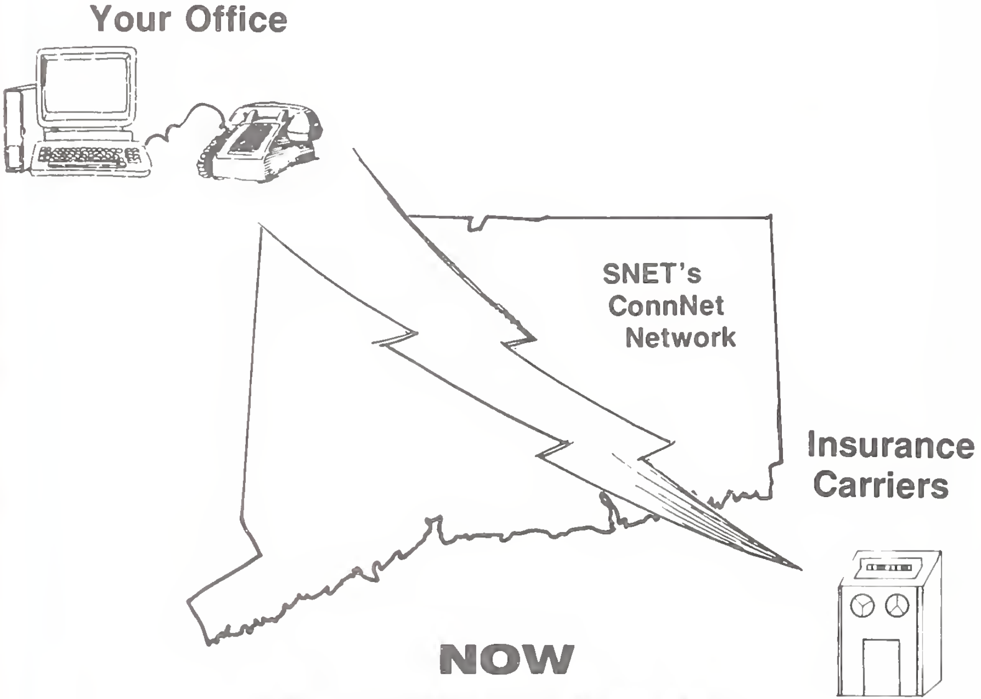
"We must prevail in our efforts to preserve our professionalism ethic or nothing we can possibly do will restore the lost confidence of the public." Dr. Nelson stated. "The patients' confidence rests on their faith in us to maintain our competence and assure the quality and appropriateness of the care we give, and, above all, to place their welfare above our own financial self-interest. No amount of self-promotion and media hype will rescue medicine from public disdain if we violate their confidence. If we leave a legacy in which the only rewards of being a physician are monetary, who will want to be a physician? Who will protect the patient from those who do?"

Joseph C. Czarsty, M.D.
President

ProMed's

Electronic Claim Processing Makes $ense

A speedier remittance with no postage or paper costs
and no telephone use or claim charges.



NOW

Expanded for both

Blue Cross & Blue Shield of Connecticut
and
Constitution Health Network
Claim Submission

ProMed
SYSTEMS INCORPORATED

221 Whitney Avenue
New Haven, CT 06511

A
subsidiary of:
Blue Cross
Blue Shield
of Connecticut

Reflections on Medicine

Concerning Multiple Fibromas of the Skin

ROBERT U. MASSEY, M.D.

Friedrich Daniel von Recklinghausen was born in Gütersloh in Westphalia, 2 December 1833, and died 77 years later in Strassburg, 26 August 1910. His life spanned most of the Golden Age of German medical science; indeed men and women living through those years, almost anywhere, saw more remarkable feats of technology and advances in scientific understanding than at any time in our history before, and perhaps since.

Five years before von Recklinghausen's birth, Friedrich Wöhler had synthesized urea from ammonium cyanate, and had demonstrated that an organic compound made by a living organism could also be made from inorganic matter in the laboratory. In 1910, the year of von Recklinghausen's death, Paul Ehrlich and his student, S. Hata, synthesized salvarsan, "606", and used it successfully in the treatment of syphilis. Twenty years before von Recklinghausen's birth, Napoleon's brother, Jerome, had ruled in Westphalia; four years after his death, the Kaiser's armies were on their way to France.

Johannes Müller (recall the Müllerian ducts) has been called the "founder of scientific medicine in Germany."[1] At about the time of von Recklinghausen's birth he began the journal, *Müllers Archiv für Anatomie, Physiologie und Wissenschaftliche Medicin* which, with *Virchows Archiv* and *Wunderlichs Archiv*, was to play such an important role in the diffusion of scientific knowledge in 19th century Europe and North America. Müller's students included Schwann, Henle, Kölliker, Virchow, Du Bois Reymond, Helmholtz, and Brücke. Von Recklinghausen's doctoral dissertation, "De pyaemiae theoriis," was completed at the age of 22 at Berlin under Virchow, where he remained, after additional work in Vienna, Rome, and Paris, until 1865. Following appointments in pathology at Königsberg and Würzburg, he was called to the newly established university at Strassburg in 1872 where he built a strong department, served for a time as rector of the university, and worked productively until his death in 1910.

In medical school we learned about two von Recklinghausen's diseases: the one of the nerve trunks, the other of bone. Generalized osteitis fibrosa cystica, now more appropriately known as a manifestation of primary hyperparathyroidism, was described by von Recklinghausen along with two cases of polyostotic fibrous displasia (Albright's syndrome) in 1891. Since he had confused these two clinical entities and could not at that time appreciate their endocrinologic relationships, we probably should avoid attaching his name to the bone disease. Hemochromatosis, however, might more properly carry his name since, although he was not the first to describe it, he recognized its nature and gave it its name (1889).

His descriptions of neurofibromatosis were classics; he noted many of the features, including café au lait spots, which we now recognize as typical of the disease. Most importantly he identified the tumors as fibroneuromas. It was, however, his reputation as an outstanding pathologist and teacher that resulted in the rapid attachment of his name to the disease. Perhaps he might have preferred to have had it named for his famous teacher, Rudolf Virchow, who had remarked upon its hereditary nature (1847), and of whom he once said to his friend and colleague Wilhelm Waldeyer, "The old man sees more than both of us."[2]

REFERENCES

1. Garrison F, "History of Medicine," Fourth Ed 1929, p 451 WB Saunders & Co, Philadelphia & London.
2. Hoffmann E, Dtsch med Wschr, Rudolf Virchow und die Recklinghausensche Krankheit, 1955 80:293-295.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

How More Than 2000 Doctors Have Eased The Pain Of Managing A Practice.

If your practice is like a lot of others, you often spend more time on office problems than on the health problems of your patients.

Our one easy-to-use, fully-integrated computer system can take care of billing, provide financial updates, help you market your practice. And give you more time to do what you went to medical school for.

"Medic continues to be the best system for our clients."
Thomas Booth, president of The PM Group, Battle Creek, Michigan

When this nationally-recognized medical consulting firm recommends a product to their clients, you know it's been carefully scrutinized. After reviewing over 60 medical systems, The PM Group judged our system to be the best. And the one that offers the best support and service.

"It's helped our cash flow tremendously."
Mike Griga, general manager of Mayfield Neurological Institute, Cincinnati, Ohio

Changing the billing system from once a month to once a week is just one way Medic has improved the bottom line of the nation's largest neurosurgery group. Our system can ease the process of sending statements and reduce the number of uncollected bills. Plus, our easy-to-understand printouts help you keep better track of your financial condition.

"When lightning knocked out our system, Medic worked through the night to get it up and running quickly."
Doug Speak, assistant administrator of Suncoast Medical Clinic, St. Petersburg, Florida

We'll do whatever it takes to keep your system working. Day or night. We have a toll-free STAT line to handle questions and problems. And there's a STAT PLUS line from our support center to your system for software updates and diagnoses.

So if you're looking to increase the efficiency, productivity and profitability of your practice, take a look at the Medic Computer System.

Over 2000 physicians in more than 600 practices throughout the U.S. are calling it a minor medical miracle.

medic
computer systems

6601 Six Forks Road, Suite 150
Raleigh, North Carolina 27609

Telephone toll-free: 1-800-334-8534
North Carolina: 919-847-8102

Other offices: Cincinnati, Ann Arbor
Orlando, Pittsburgh, Richmond

Please tell me how Medic Computer Systems can help my practice.

Name ____________________

Address ____________________

City ____________________

State __________ Zip __________

Phone ( ) ____________________

Number of physicians in practice __________

Specialty ____________________

Medic Computer Systems
6601 Six Forks Rd., Suite 150
Raleigh, North Carolina 27609

Alternative Reproductive Methods: Toward a Comprehensive Public Policy

JOSEPH M. HEALEY, J.D.

The availability of alternative methods of reproduction such as artificial insemination, in vitro fertilization, surrogate embryo transfer and surrogate parenting raises important ethical and legal questions about the extent to which these options should be available and about the manner in which available options should be exercised. Included among the more pressing questions are:

(1) whether the alternative reproductive methods represent an appropriate exercise of our creative power as humans or whether they represent unwise or undesirable intrusions into areas beyond responsible human behavior;

(2) whether the alternative reproductive methods undermine or threaten to undermine important individual and societal values dealing with the family and with conception, childbearing and child rearing;

(3) whether the alternative reproductive methods are efficacious and avoid exposing the parent or potential offspring to an unacceptable risk of injury or harm;

(4) what the moral and legal status of the sperm, ovum, embryo, fetus and child are and ought to be;

(5) whether participants in the use of the alternative reproductive methods are vulnerable to civil or criminal liability for their activity.

Answers to these questions in the form of clear legal guidelines or a comprehensive societal policy toward reproduction have been slow in coming. This is not unexpected and is not entirely undesirable. At a time when controversial cases such as the custody battle over Baby M in New Jersey attract national attention, it is important to avoid the rush to impose solutions which may only yield further problems. Our goal should be the development of comprehensive societal policies in a careful manner.

The search for such a policy has been complicated by two important factors. First, we live in an age of scientific, social and legal transition characterized by rapid change and by direct challenges to traditional concepts and values. Second, the underlying issues implicate individual and societal values in a pluralistic context. Not unexpectedly, there is a great difference of opinion about which values should be primary and how they should be incorporated into public policy. The first of these factors reflects the impact of increased medical power, of the increased acceptance of alternative models of the family and of childbearing, and of a shift in the interpretation of legal rights and duties in the reproductive context. The second of the factors acknowledges societal ambivalence about the alternative reproductive methods. To one group, these methods are an appropriate extension of responsible human control. To another group, these methods are ill-advised ventures outside the scope of responsible human behavior. As a consequence, there is no clear set of guiding principles, widely endorsed and capable of serving as the foundation for a comprehensive societal policy.

Nonetheless, it is time to increase our efforts toward the development of such a policy. It is likely that there will continue to be a case-by-case examination of the important ethical and legal issues as presented in concrete legal controversies. More importantly, there needs to be a more systematic examination of these issues through public discussion and the legislative enactment of comprehensive statutes which will provide guidance for health professionals and their patients. Leaders in American health law such as John Robertson,[1] George Annas,[2] Alex Capron,[3] and Harry Krause[4] have provided a series of starting points for the formulation of a legislative agenda in this area. Though it is undesirable to rush to create a policy, it is equally undesirable to ignore the legitimate need for guidance and for clarification.

REFERENCES

1. Robertson J. "Procreative Liberty and the Control of Conception, Pregnancy, and Childbirth" 69 Virginia Law Review 405 1983; "Embryos, Families and Procreative Liberty: The Legal Structure of the New Reproduction" 59 Southern California Law Review 942, 1986.
2. Annas G. "Redefining Parenthood and Protecting Embryos: Why We Need New Laws" The Hastings Center Report Oct 1984, p 50.
3. Capron A. "The New Reproductive Possibilities: Seeking a Moral Basis for Concerted Action in a Pluralistic Society" Law, Medicine and Health Care Oct 1984, Vol 12(5), p 192.
4. Krause H. "Artificial Conception: Legislative Approaches" Family Law Quarterly Fall 1985, Vol 19, No 3, p 185.

JOSEPH M. HEALEY, J.D., Associate Professor, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

AIM HIGH

A PRESCRIPTION FOR PHYSICIANS

BOTHERED BY:

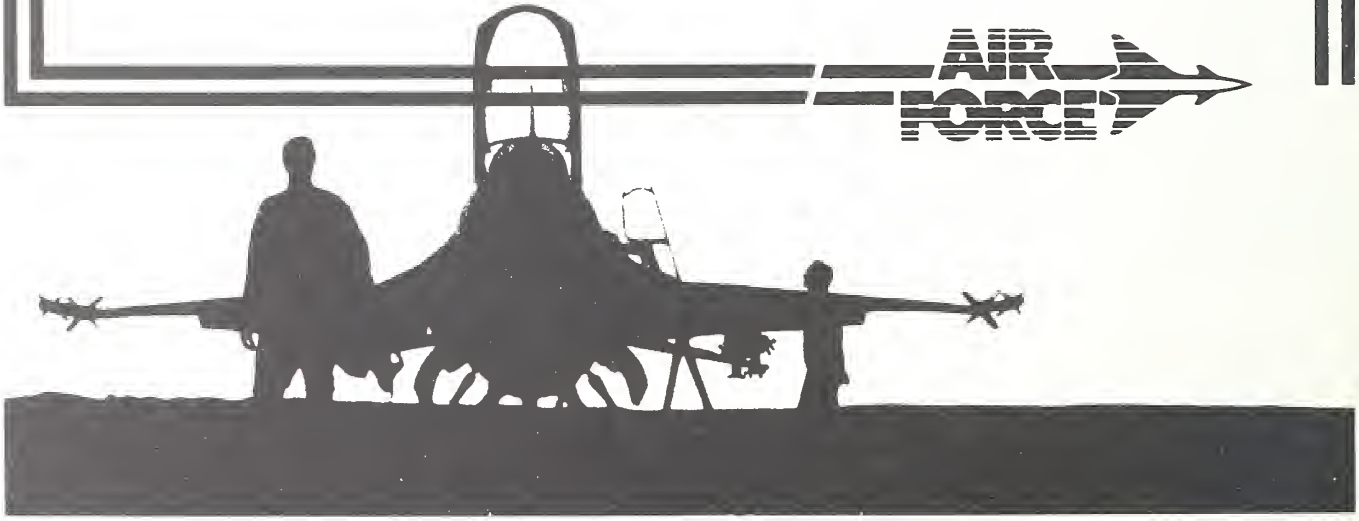
- ★ Too much paperwork?
- ★ The burden of office overhead?
- ★ Malpractice insurance costs?
- ★ Not enough time for the family?
- ★ No time to keep current with technology and new methods?
- ★ No time or money for professional development?

JOIN THE AIR FORCE MEDICAL TEAM;
WE'LL PROVIDE THE FOLLOWING:

- ★ Competent and dedicated professional staff.
- ★ Time for patients and for keeping professionally current.
- ★ Financial security, a generous retirement for those who qualify.
- ★ If qualified, unlimited professional development.
- ★ Medical facilities all around the world.
- ★ 30 days of vacation with pay each year.
- ★ Complete medical and dental care.
- ★ Low cost life insurance.

Want to find out more? Contact your nearest Air Force recruiter for information at no obligation. Call

SSgt Joe Laferriere
203-745-1128 collect



195th ANNUAL MEETING
# of the
CONNECTICUT STATE MEDICAL SOCIETY
May 6, 7, 1987
Ramada Inn
275 Research Parkway
Meriden, Connecticut

COMMITTEE ON PROGRAM OF THE SCIENTIFIC ASSEMBLY

Franklin Robinson, M.D., New Haven, Chairman
Norman J. Marieb, M.D., New Haven
James D. Kenney, M.D., New Haven
James W. Wood, M.D., Greenwich

A MESSAGE FROM THE PRESIDENT

This two day meeting will be a highly informative and productive one and all concerned physicians should avail themselves of the opportunity to attend.

The House of Delegates meets on Wednesday, May 6, in an all day session directed to transacting the business of the Society. The House of Delegates is open to all members of the Society and members, who are not official delegates may attend and speak at reference committee hearings, where most of the items coming before the House will be discussed. This is an excellent opportunity for members to express their opinions freely and to observe their elected representatives in action doing their best to deal effectively with the rapidly changing legislative, economic and social issues of the day in relation to the care of the patient. Some of the major issues that will be discussed in the reports of officers and committee chairmen is an update on CMIC activities, M.D. Health Plan, and the current legislative issues.

The inauguration of the new President, James P. Orphanos, M.D., of Greenwich, will take place at the House of Delegates meeting and will be followed by a reception for the President immediately following the close of the meeting.

An excellent and timely program has been arranged for Thursday, May 7, on socio-economic and scientific subjects. In the morning, Dr. Robert E. McAfee, a member of the Board of Trustees of the AMA, Dr. Saul J. Farber, Professor and Chairman of the Department of Medicine of New York University Medical Center, and Dr. Robert L. Mullin, Director of Continuing Care at the Hospital of St. Raphael, will discuss the changing medical scene and its effect on the practicing physicians. The afternoon session will be devoted to an overview of Magnetic Resonance Imaging (MRI) and its value to the practice of medicine.

Many of us have failed to take advantage of the opportunity afforded to the membership by the Society. As President, I urge everyone to attend this important event and hope to meet you there this year.

Joseph C. Czarsty, M.D.

GENERAL INFORMATION
READ CAREFULLY

REGISTRATION

The registration desk will be located in the lobby of the Inn and everyone attending the meeting is requested to register. There will be no charge for registration and all members of the Society will be given a guest luncheon ticket *only* if they register.

PARKING

There are ample parking facilities.

TELEPHONE

Telephone messages will be received at Meriden, 238-2380.

LUNCHEON

Luncheon will be served poolside and ALL MEMBERS OF THE SOCIETY REGISTERING WILL BE THE GUESTS OF THE SOCIETY. PLEASE REMEMBER A LUNCHEON TICKET WILL BE GIVEN TO MEMBERS ONLY IF THEY REGISTER.

HOTEL ACCOMMODATIONS

Persons who wish to stay overnight at the Inn should make room reservations as soon as possible. Please indicate in your letter that you are attending the Connecticut State Medical Society Meeting.

PROGRAM

The House of Delegates will be held on May 6th and the scientific program will be held on May 7th. The scientific program will be concentrated in one day, May 7th. The general program will be held in the ballroom between 10:30 A.M. and 4:00 P.M. and the section meetings will be held in the morning at 8:30 A.M. and in the afternoon at 4:00 P.M. in the rooms listed in the program.

PRESIDENTS INAUGURATION

The inauguration of the new President will take place at the House of Delegates meeting on May 6th at about 3:00 P.M. All members are invited to attend the inauguration. A reception for the President will be held immediately following the close of the meeting.

EXHIBITS

All the exhibits will be located in one section of the ballroom. Physicians should take advantage of the opportunity to review what is new and timely by visiting the commercial exhibits.

ALL ACTIVITIES WILL TAKE PLACE AT THE RAMADA INN UNLESS OTHERWISE INDICATED

HOSPITAL RESIDENTS, INTERNS AND MEDICAL STUDENTS ARE CORDIALLY INVITED TO ATTEND THIS MEETING.

ANNUAL MEETING OF THE HOUSE OF DELEGATES

WEDNESDAY, MAY 6, 1987

BALLROOM

Presiding:

Lawrence B. Ahrens, M.D., *Newington, Speaker of the House*

Mehdi S. Eslami, M.D., *Waterbury, Vice Speaker of the House*

9:30 REGISTRATION OF DELEGATES

10:00 CALL TO ORDER
REPORTS OF OFFICERS, COMMITTEES, OTHERS
OLD AND NEW BUSINESS
REFERENCE COMMITTEE HEARINGS

1:00 LUNCHEON—PRESENTATIONS AND AWARDS
Guest Speaker—Robert E. McAfee, M.D.,
Member Board of Trustees, AMA

2:30 CALL TO ORDER
REPORT OF CSMS AUXILIARY
ADDRESS OF THE PRESIDENT
Joseph C. Czarsty, M.D., *Oakville*
ELECTION OF OFFICERS AND COMMITTEES
INAUGURATION OF NEW PRESIDENT
James P. Orphanos, M.D., *Greenwich*
INAUGURAL ADDRESS
AWARD TO PAST PRESIDENT
REFERENCE COMMITTEE REPORTS
INTRODUCTION OF GUESTS
ADJOURNMENT
RECEPTION TO FOLLOW

GENERAL SCIENTIFIC PROGRAM

THURSDAY, MAY 7, 1987

MORNING SESSION

8:15 REGISTRATION—LOBBY

8:30-10:00 MEETINGS OF SECTIONS OF THE SOCIETY

10:00 INTERMISSION TO VISIT EXHIBITS

BALLROOM

10:20 CALL TO ORDER AND WELCOMING REMARKS
President, Connecticut State Medical Society
Presiding: James D. Kenney, M.D., *New Haven*

10:30 PRACTICE OF MEDICINE IN 1990—WILL YOU BE READY?
ROBERT E. McAFEE, M.D., SOUTH PORTLAND, MAINE; Member Board of Trustees, American Medical Association

11:10 MAINTAINING PHYSICIAN QUALITY: CAN (WILL) MEDICINE REMAIN AN ATTRACTIVE CHOICE FOR BRIGHT WELL MOTIVATED STUDENTS?
SAUL J. FARBER, M.D., NEW YORK CITY; Frederick H. King Professor and Chairman of Department of Medicine, New York University Medical Center

11:50 DRG's, PROSPECTIVE PAYMENT, TIME FOR RATIONALITY
ROBERT L. MULLIN, M.D., NEW HAVEN; Director of Continuing Care, Hospital of St. Raphael; Assistant Clinical Professor of Cardio-Thoracic Surgery, Yale University School of Medicine.

12:30 INTERMISSION TO VISIT EXHIBITS

1:00 LUNCHEON—POOLSIDE

AFTERNOON SESSION

Presiding: Norman J. Marieb, M.D., *New Haven*

2:00 AN INTRODUCTION TO THE PHYSICS OF MAGNETIC RESONANCE IMAGING
ROBERT C. LANGE, Ph.D., NEW HAVEN; Associate Professor of Diagnostic Imaging, Yale University School of Medicine; Technical Director, MRI Center, Yale-New Haven Hospital

2:30 MR IMAGING OF NEURO AXIS
WILLIAM E. ALLEN, M.D., NEW HAVEN; Co-Director, Temple Radiology Group, New Haven; Clinical Associate Professor of Diagnostic Imaging, Yale University School of Medicine.

3:00 CLINICAL APPLICATIONS OF BODY MR IMAGING
STANLEY RAPOPORT, M.D., NEW HAVEN; Assistant Professor of Diagnostic Radiology, Yale University School of Medicine

3:30 INTERMISSION TO VISIT EXHIBITS

4:00 MEETINGS OF SECTIONS OF THE SOCIETY

THURSDAY, MAY 7
MEETINGS OF SECTIONS OF THE SOCIETY
MORNING SECTION PROGRAMS

SECTION ON PHYSICAL MEDICINE AND REHABILITATION

8:30 A.M. Hanover Room

President: Mary L. Sipski, M.D., *Wallingford*
Secretary: Thomas E. Lammertse, M.D., *Wallingford*

OUTPATIENT PAID MANAGEMENT
ARLEN I. LICHTER, M.D., WATERBURY; Director of Physical Medicine, Waterbury Hospital

INPATIENT PAIN REHABILITATION
ALAN D. RUSSAKOV, M.D., HARTFORD; Director of Rehabilitation, Mt. Sinai Hospital

BEHAVIORAL APPROACH TO PAIN MANAGEMENT
COREY FOX, Ph.D., HARTFORD; Program Director, Pain Unit, Mt. Sinai Hospital

---

SECTION ON INTERNAL MEDICINE

10:00 A.M. Fairfield Room

President: Morton Bender, M.D., *New Haven*
Secretary: Robert M. Stark, M.D., *Greenwich*

THE ATHEROGENIC RISK OF ANTIHYPERTENSIVE THERAPY
ROBERT M. STARK, M.D., GREENWICH; Associate Attending Physician, Greenwich Hospital; Clinical Assistant Professor of Medicine, Yale University School of Medicine

---

LIVE TV TAPING BY CONNECTICUT PUBLIC TELEVISION (CPTV) ON THE SUBJECT OF "LONG TERM NURSING CARE."

9:30 Danbury Room

"The Fourth Estate" a TV program that airs every Friday night at 9:30 P.M. on CPTV will tape a production on the subject of "Long Term Nursing Home Care." Attorney Joseph Steinberg hosts the program and prominent medical reporters from the state's major newspapers will be the forum. CSMS members are invited to witness this live taping. Audience participation will be invited following the taping. Please be advised that space is limited and is on a first come basis.

THURSDAY, MAY 7
AFTERNOON SECTION PROGRAMS

SECTION ON ANESTHESIOLOGY

5:00 P.M. Brunswick Room

President: Richard B. Lilly, M.D., *Hartford*
Secretary-Treasurer: Clark E. O'Brien, M.D., *Hartford*

GETTING OXYGEN TO THE TISSUES
W.W. MAPLESON, Ph.D., Heath Park, Wales; Professor of the Physics of Anesthesia, Department of Anesthetics, University Hospital of Wales

---

SECTION ON OBSTETRICS & GYNECOLOGY

4:00 P.M. Fairfield Room

President: Edwin J.T. Moore, M.D., *Waterbury*
Secretary: Samuel G. Smith, M.D., *Manchester*

PROGRAM TO BE ANNOUNCED

SECTION ON ORTHOPEDICS

4:00 P.M. Arlington Room

President: David B. Kalayjian, M.D., *Middletown*
Secretary: Gerard J. Lawrence, M.D., *Willimantic*

ARTHROSCOPY OF THE SHOULDER
RUSSELL WARREN, M.D., NEW YORK; Professor of Orthopedic Surgery, Hospital of Special Surgery, Cornell University Medical School; Team Physician, New York Giants

---

SECTION ON PATHOLOGY

3:00 P.M. Jericho Room

President: Jack Hasson, M.D., *Hartford*
Secretary: Rebecca L. Johnson, M.D., *Hartford*

THE PLACENTA: WHY BOTHER!
CAROLYN SALAFIA, M.D., DANBURY; Associate Pathologist, Danbury Hospital; Clinical Instructor, Department of Pathology, Yale University School of Medicine

SECTION ON PROCTOLOGY

3:30 P.M. Hanover Room

President: Bernard J. Kaplan, M.D., *Hartford*
Secretary: Sanford Savin, M.D., *Bridgeport*

HEMORRHOIDECTOMY–IS HOSPITALIZATION NECESSARY?

TRACY S. GAGE, M.D., HARTFORD; Staff, St. Francis Hospital

SECTION ON RADIOLOGY

4:00 P.M. Guilford Room

President: Kenneth I. Bird, M.D., *Higganum*
Secretary: Lawrence N. Rappaport, M.D., *Bristol*

MINIMAL CRITERIA FOR MAMMOGRAPHY AS ESTABLISHED BY THE CONNECTICUT CHAPTER OF THE AMERICAN COLLEGE OF RADIOLOGY

HAROLD MOSKOWITZ, M.D., FACR; HARTFORD; Director of Radiology-Imaging, Mt. Sinai Hospital: Associate Clinical Professor of Radiology, University of Connecticut Medical School.

SECTION ON THORACIC AND CARDIOVASCULAR SURGERY

4:00 P.M. Ivoryton Room

President: Joseph P. Dineen, M.D., *Ansonia*
Secretary: Allan L. Toole, M.D., *New Haven*

BUSINESS MEETING

SECTION ON UROLOGY

4:00 P.M. Elmsford Room

President: James F. Walsh, III, M.D., *Bridgeport*
Secretary: Haik Kavookjian, Jr., M.D., *Stamford*

BUSINESS MEETING

IMPORTANT–PLEASE NOTE

The following Sections of the Society will not be meeting on May 7. Following are the dates, times and locations of these meetings:

SECTION ON ALLERGY
May 6, 1987

6:00 P.M. Ramada Inn, Meriden

SECTION ON DERMATOLOGY
May 27, 1987

12:00 Noon Sheraton Hotel, Waterbury

SPECIAL NOTICES
CONTINUING MEDICAL EDUCATION CREDITS

AMA PHYSICIANS RECOGNITION AWARD

As an organization accredited for continuing medical education by the Affiliation Committee for Continuing Medical Education, Yale University School of Medicine certifies that this program is acceptable for Category 1 credit as specified by the American Medical Association for the Physicians Recognition Award. Credit is granted in this category on an hour for hour basis.

AMERICAN ACADEMY OF FAMILY PHYSICIANS

The Commission on Education of the AAFP has accredited the scientific program of the Society's Annual Meeting for four hours of prescribed credit for the general lectures and one and one half hours of elective credit for each lecture attended which is presented by the individual specialty sections of the Society.

TECHNICAL EXHIBITS

Our exhibits contribute to the value of our assembly by presenting goods and services of interest and importance to physicians. Personal visits to the booth will increase your understanding of the materials and programs on display.

Ayr Insurance Agency, Inc., Hamden, Connecticut
Blue Cross-Blue Shield of Connecticut, North Haven, Connecticut
Connecticut Army National Guard
Connecticut Medical Insurance Company (CMIC), Wallingford, Connecticut
Data Systems of Connecticut, Inc., Milford, Connecticut
Lanier, New York, New York
M.D. Health Plan, New Haven, Connecticut
Nu Sym, Inc., Gales Ferry, Connecticut
Oxford Health Plan, Darien, Connecticut
Parke, Davis & Company, Morris Plains, New Jersey
Travelers-Medicare, Wallingford, Connecticut
U.S. Navy Medical Program

The Connecticut State Medical Society
acknowledges with thanks an education program
grant received from:
Boehringer Ingelheim Ltd., Ridgefield, CT
Geigy Pharmaceuticals, Summit, NJ

From the Executive Director's Office

CALL

ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1987 Annual Meeting of the House of Delegates will be held at the Ramada Inn Meriden, commencing at 9:30 A.M. on Wednesday, May 6.

Joseph C. Czarsty, M.D., President
Lawrence B. Ahrens, M.D., Speaker of the House
Anne Marie Welch, M.D., Secretary

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society provides:

Resolutions may be introduced by any Active or Life Member or student members or postgraduate physician members of the Society, in compliance with the following provisions:

a. *All resolutions, reports and similar items of business submitted in writing and received at the office of the Executive Director not later than thirty days before the date scheduled for that meeting shall be considered as regular business of the House of Delegates.*

b. *Component county associations or the student members or postgraduate physician members, whose meetings are held later than thirty-five days prior to the date of the House of Delegates shall be allowed five days after the close of such meeting in which to submit resolutions, reports and similar items of business to the Executive Director's office and still have such material considered as regular business. In no event, however, may such resolutions, etc. be considered regular business if they are received later than fifteen days prior to the date of the meeting.*

c. *Reports, recommendations, resolutions or other new business may be presented to the House of Delegates by the Council of The Society at any time and shall be considered as regular business.*

d. *Any business which does not qualify as regular business in accordance with the foregoing provisions may be accepted for consideration by a majority vote of the delegates present and shall be referred at once by the Speaker to a reference committee. When business is introduced under the provision of this paragraph the vote shall be taken without debate, except that the introducer shall be allowed not more than two minutes to explain why it should be considered as regular business.*

COUNCIL MEETING

February 26, 1987

Attendance

Present in addition to the Chairman, Dr. Guy W. Van Syckle and Vice-Chairman, Dr. M.S. Eslami were: Drs. Ahamed, Beck, Bonner, Czarsty, Dardick, Finn, Jr., Fox, Freedman, James, Kamens, McDonnell, O'Brien, Petrie, Ragusa, Sadowski, Sullivan, Jr., Sweet, Villa, Wetstone, Whalen, Zanker and Zlotsky.

Also present: Mr. Norbeck, Mrs. Lindquist, Mr. Brunell, Mr. Sullivan, Mr. Tomat (FCMA), Mr. Freberg (NHCMA) and Mr. Coffey (HCMA).

Absent were: Drs. Abbot, Ahrens, Bobruff, Friedberg, Orphanos, Reyelt, Jr., Robbins, Rose, Schwartz, Waldron and Welch.

Councilor-At-Large

On a motion made by Richard Sweet, M.D., Middletown, it was VOTED to appoint W. Raymond James, M.D., Essex, as Councilor-at-Large, to complete the unexpired term of Joseph S. Sadowski, M.D., who took office as Alternate AMA Delegate on January 1, 1987.

Reports from Physicians Serving on State and Federal Agencies

Dr. W. Raymond James, who is a member of the Commission on Medicolegal Investigations, reported that Dr. James L. Luke was named to the position of Chief Medical Examiner for the State of Connecticut and would take office on April 1. He further reported that the budget for the Medical Examiners office had been increased by 50% and that 22 new employees had been added to the Staff.

It was VOTED to invite James L. Luke, M.D. and Frederick Adams, D.D.S., the new Commissioner of Health to address the House of Delegates at its annual meeting on May 7.

Dr. Edward Kamens reported that the Prospective Reimbursement Committee for the State of Connecticut has been meeting and will be addressing the effect of the Prospective Payment System on the health care system of Connecticut. One of the main concerns of the committee will be the utilization of health care resources and the quality of care in the state.

Report of the President

Dr. Joseph Czarsty, President, reported that he had just returned from attending a public hearing on mandatory assignment where there were 500 seniors present who had been bussed in from various parts of the state to recommend mandatory assignment.

Dr. Czarsty reported that the controversy over Mandatory Assignment was increasing, however, CSMS is getting their message to many groups with positive results. He further reported that he and Tim Norbeck appeared on the Mark Davis show in Hartford on January 5 with Representatives Paul Gionfriddo and Edith Prague. The program lasted two hours which were spent answering questions on mandatory assignment.

It was VOTED to approve the following resolution introduced by Dr. Czarsty and transmit it to the legislators:

WHEREAS, The Medical Courtesy Card Program addresses an important health need for the elderly; AND

WHEREAS, Connecticut physicians are committed to serving the medical needs of their senior patients; AND

WHEREAS, Connecticut physicians recognize that many of their elderly patients have low incomes and need Medicare assignment taken for their care; AND

WHEREAS, Connecticut physicians understand the need to demonstrate their intent to continue to support and participate in the Medical Courtesy Card Program; THEREFORE, BE IT

RESOLVED, That the Connecticut State Medical Society declares its commitment to continue the Medical Courtesy Card Program indefinitely, in order to ensure access to Medicare assignment for lower income seniors.

It was further VOTED that individuals who have qualified for the CONNPACE card be automatically enrolled in the Medical Courtesy Card Program and that the leadership of the Society be given latitude to release this information at the appropriate time.

Report of the Executive Director

Tim Norbeck, who had attended the meeting with Dr. Czarsty, reported that although every effort has been made to inform the media of the issues, there is a good deal of misinformation being publicized. He is availing himself of every opportunity to address the issue of mandatory assignment. He requested the councilors to contact the state office if speakers were needed for any local meetings.

M.D. Health Plan Update

Dr. William Whalen reported that the plan was now in the stage of capitalization. There was a delay in getting the Security Exchange Commission's approval which was finally received on February 13. It is necessary for 1,500 physicians to purchase stock totalling 4.5 million dollars in order to break escrow. To date it has only been necessary to use $90,000 of the bridge loan. The Steering Committee was having its final interview with a candidate for Chief Executive Officer very shortly and it is expected that this candidate will meet with approval. The M.D. Health Plan already has a Vice-President of Marketing. He reported that the CSMS-IPA was moved to Whitney Avenue where the M.D. Health Plan is located. It is expected that a room would be maintained at the CSMS building for a short period of time. Dr. Whalen moved and the Council VOTED to approve a motion that the Council, after due deliberation and evaluation of the M.D. Health Plan, gives its approval to the plan and that the Council also commend its leadership and staff for the excellence and quality of their contribution in bringing the Plan into existence. It was proposed that a letter be sent to the membership informing them of this action.

Committee on Insurance

A brief review of the life insurance policies written by the Ayr Agency and the Eilers Agency was given by Dr. John Sullivan, Chairman. It was VOTED to approve the Committee's recommendation that the CSMS Council withdraw its endorsement of the Phoenix Life Insurance Policy. It was reported further that CNA will be reducing the premiums on the Overhead Plan offered by the Eilers Agency by 20%, on November 1987 and will continue to be endorsed by CSMS. The Committee is currently looking into Workmen's Compensation policies in an attempt to obtain reduced premiums for the membership.

Report on Bylaw Committee

The Subcommittee on Bylaws presented a series of changes concerning dues and qualifications for Life Membership. Essentially the following changes were recommended:

1. Retirement age is moved up to 70 for dues free Life Membership.
2. There is no Life Membership for physicians in full time practice regardless of age or number of years in the Society.
3. All reference to 35 years in the Society as an eligibility standard for Life Membership has been dropped.
4. A new category of 20% dues for fully retired members under 70 years with 15 years of Society participation has been created.
5. A 50% dues category for part time physicians over 70 years has also been added.

Following discussion, it was VOTED to approve the recommendations and bylaw changes recommended by the Subcommittee and transmit the proposed bylaw changes to the House of Delegates on May 7, 1987 at which time they will be placed on the table for action at a future meeting. In the interim, copies of the proposed changes will be sent to the county secretaries for their information.

Report of the Subcommittee on Preliminary Study of Nominations

With a few amendments, it was VOTED to approve the report of the Subcommittee and to transmit the complete slate of nominees to the House of Delegates for election with Council recommendation for approval. It was further VOTED to discontinue the Committee on Professional Liability and increase the number of members on the following committees:

Cancer Coordinating Committee - 12 to 15
Committee on Physician Health - 10 to 12

Committee on Public Health

Two recommendations were received from the Committee on Public Health as follows:

a. "Whereas certain provisions of the Public Health Code related to nursing homes are costly, onerous, and difficult to comply with, a review should be conducted by the Department of Health Services to determine the current need for those regulations."

   Following discussion, it was VOTED to refer this recommendation back to the Committee with the recommendations that the issues raised be discussed with the new Commissioner of Health, and if necessary, report back to the Council.

b. "The Connecticut State Medical Society is urged to recommend to the State Department of Health Services that the State Department of Health survey Connecticut physicians to determine their willingness to join an AIDS referral service."

It was VOTED to approve this recommendation.

Report of the Annual Meeting of The Main Medical Society

Since Dr. W. Raymond James was not present at the Council meeting on January 7 to discuss the report he had submitted, action on the subject report was deferred to this meeting at which time he would be in attendance. He reported that of special interest was Maine's success in the legislation on tort reform which nearly paralleled Connecticut legislation. The Trial Lawyers' Association and the physicians of the state had combined with other groups in drawing up a package with an agreement that neither would support any other legislation and that both would support the agreed on program.

Nominations for the Boards of CMIC and CMMI to be Elected at the 1987 Annual Meeting

CMIC Board of Directors

Nominees for CSMS Council approval were submitted by the CMIC Board of Directors in accordance with the CMIC Bylaws. It was VOTED to approve the list of nominees as submitted:

Henry Brown, M.D.
Kevin V. Dowling, M.D.
Mehdi S. Eslami, M.D.
W. Raymond James, M.D.
James P. Orphanos, M.D.
Joseph S. Sadowski, M.D.
Theodore Zanker, M.D.

CMIC Board of Directors

According to the CMMI Bylaws, the Council should nominate and select directors for election by the House of Delegates of CSMS and transmit names of nominees to CMMI in time for their annual meeting, which usually follows the CSMS meeting. It was VOTED to approve the following slate of nominees:

Sultan Ahamed, M.D.
Daniel W. Doctor, M.D.
Kevin V. Dowling, M.D.
Mehdi S. Eslami, M.D.
Jerome K. Freedman, M.D.
W. Raymond James, M.D.
Timothy B. Norbeck
James P. Orphanos, M.D.
Joseph S. Sadowski, M.D.

Report from CMMI Board

Dr. Sultan Ahamed, a member of the Board of Directors of CMMI, reported that at the last meeting of the Board, it was VOTED to set wheels in motion so that the operations of CMIC would be turned over to the Society and that the Board is in the process of this turnkey operation and expects to have matters settled by June or July, 1987 with the aim of taking over by 10/1/87. Following discussion, it was VOTED that CMMI establish by June 1 a management structure that can be put into place by October 1, 1987.

CPRO

It was VOTED to request Dr. Edward Kamens, Medical Director of CPRO, to keep the Council apprised as to the status of the quality of care in Connecticut under Medicare as perceived by the PRO committee.

Life Members

Following is a list of Life Members effective 1/1/87:

Name	Town
Donald G. Arnault, M.D.	Middletown
Norman Alisberg, M.D.,	West Hartford
Albert S. Atwood, M.D.	New London
Frederick C. Barrett, M.D.	Norwich
S. James Baum, M.D.	Fairfield
Albert S. Beasley, M.D.	Westport
Robert F. Buckman, M.D.	Orange
Edith M. Beck, M.D.	Greenwich
Malcolm S. Beinfield, M.D.	Westport
David A. Brown, M.D.	Darien
Jack W. Cole, M.D.	New Haven
Thomas H. Connell, M.D.	Stratford
Robert N. Davie, M.D.	Middlebury
Forbes Delany, M.D.	Greenwich
Samuel G. Dodd, M.D.	Mansfield
Howard S. Eckels, M.D.	Bridgeport
Ezra J. Epstein, M.D.	Florida
Marie J. Fakkel, M.D.	Stamford
Guido R. Gianfranceschi, M.D.	Danbury
Gilbert Glaser, M.D.	New Haven
Jeffrey Goldfarb, M.D.	Stamford
Irving Glassman, M.D.	New Haven
William L. Glenn, M.D.	New Haven
Julian Levine, M.D.	Stamford
Eugene M. Marks, M.D.	Newtown
John F. McGarry, M.D.	Stratford
Robert G. Nicholl, M.D.	Greenwich
John C. Robinson, M.D.	Glastonbury
Theodore Safford, Jr., M.D.	Ridgefield
Luigi Saracino, M.D.	Norwich
James D. Sawyer, M.D.	Norwich
H. Dieter Scholz, M.D.	Niantic
William A. Sinton, M.D.	Danbury
Robert P. Smith, M.D.	Branford
Charalambos D. Souvlis, M.D.	Bridgeport
R. Bruce Thayer, Jr., M.D.	Enfield
Douglas W. Thomas, M.D.	Newton
Frederick H. Treder, M.D.	Woodbridge
Granville I. Walker, M.D.	New York
Edward Wasserman, M.D.	Bridgeport

N.B.: *The foregoing is a summary of the proceedings and actions of the Council on February 26, 1987. Detailed minutes of the meetings are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.*

"SELLING PRACTICES IS OUR BUSINESS"

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping hundreds of doctors like yourself buy and sell their practices. We guide you through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902

NEW YORK FERTILITY RESEARCH FOUNDATION, INC.

For the Investigation of Problems of Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

IN MEMORIAM

CEULEMANS, CYRIL P., University of Ghent, Belgium, 1951. Dr. Ceulemans was an orthopedic surgeon in the Middlesex County area since 1961. He served as a delegate from the Middlesex County Medical Association to the State Association for more than 10 years and was also a corporator of the Middlesex Memorial Hospital. Dr. Ceulemans was a member of the Middlesex County Medical Association, the Connecticut State Medical Society and the American Medical Association; died October 27, 1986 at the age of 59.

DAVIS, CLARENCE D., Johns Hopkins, 1939. Dr. Davis was an obstetrician and gynecologist in the New Haven County area since 1957. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association; died January 26, 1987 at the age of 74.

GOLDBERG, ISADORE S., Creighton University School of Medicine, 1933. Dr. Goldberg was a general practitioner in the Litchfield County area since 1934. He was a member of the Litchfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died December 29, 1987 at the age of 82.

GRAY, PARKE H., Columbia University, College of Physician and Surgeons, 1962. Dr. Gray was an obstetrician and gynecologist in the Fairfield County area since 1969. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died January 13, 1987 at the age of 50.

HART, JAMES C., Yale University School of Medicine, 1930. Dr. Hart was an epidemiologist in the New Haven County area since 1934. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association; died December 20, 1986 at the age of 81.

KLEINMAN, HAROLD L., University of Buffalo, 1941. Dr. Kleinman was a pediatrician in the Fairfield County area since 1945. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society; died January 2, 1987 at the age of 74.

MOLONEY, DAVID R., National University of Ireland, 1959. Dr. Moloney was a dermatologist in the Hartford County area since 1966. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died January 7, 1987 at the age of 54.

ROBINS, RICHARD J., New York State University Upstate Medical Center, 1962. Dr. Robins was a psychiatrist in the Fairfield County area since 1969. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died January 2, 1987 at the age of 50.

ST. JOHN, LEOPOLD A., Fordham University, 1920. Dr. St. John was a general surgeon in the Hartford County area since 1920. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died December 4, 1986 at the age of 89.

SAMSON, DANIEL P., College of Physicians and Surgeons of Columbia University, 1943. Dr. Samson was a general practitioner in the Litchfield County area since 1947. He was a member of the Litchfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died January 1, 1987 at the age of 69.

SCULLY, HAROLD F., New York Medical College, 1956. Dr. Scully was an anesthesiologist in the Hartford County area since 1957. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society; died January 8, 1987 at the age of 56.

SERRELL, HOWARD P., Cornell, 1932. Dr. Serrell was a general surgeon in the Fairfield County area since 1936. He was a member of the Fairfield County Medical Association and the Connecticut State Medical Society; died November 25, 1986 at the age of 81.

SILVERMAN, DONALD R., St. Louis University, 1963. Dr. Silverman was a nephrologist in the Fairfield County area since 1970. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died December 13, 1986 at the age of 48.

TAYLOR, STERLING P., George Washington University, 1916. Dr. Taylor was a general practitioner in the New Haven County area since 1922 and served as County Medical Examiner from 1958 until 1980. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association; died November 28, 1986 at the age of 94.

TOMAINO, PIETRO, Messina School of Medicine, Messina, Italy, 1959. Dr. Tomaino was an internist in the Fairfield County area since 1961. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died December 11, 1986 at the age of 63.

Selling or Buying a Practice?

THINK PPS

because we are one of the foremost appraisers of professional practices and are recognized as "Court-qualified Expert Witnesses."

THINK PPS

because we know how to maximize tax advantages, how to provide alternative financing plans, and because our objectivity can protect you from making costly emotional blunders.

THINK PPS

because our nationwide network of offices has great opportunities for buyers and sellers. We promote in the trade press and by mail.

THINK PPS

because we respect and protect confidentiality and know how to articulate the memoranda necessary to formulate a fair and equitable Purchase and Sales Agreement.

for more information call

(203) 782-6740

PPS

Professional Practice Sales, Inc.

Serving the Professional Community Since 1966

844 Grand Avenue, New Haven, CT 06511

other offices in New York & Boston

STAFF PHYSICIAN

The way we care sets us apart.

GERIATRIC HEALTHCARE

40 HOUR WORK WEEK

Nationally recognized provider of geriatric healthcare, located in lovely central Connecticut region, offers an excellent opportunity to work side by side with other caring professionals.

We are a 650 resident, multi-licensed, JCAH approved campus-like center, which includes a 150 unit continuing care retirement community. Geriatric experience preferred but we will consider internists and recent graduates.

We offer an excellent work environment, a standard work week with rotations of evening and weekend on-call duty, and a full range of employee benefits. Salary will be commensurate with experience.

If interested, please send curriculum vitae, with salary requirements to Dr. Erlinda Rauch, Medical Director at:

Masonic Home and Hospital

P.O. Box 70
Wallingford, CT 06492

An equal opportunity employer

"People who matter, careers that count."

Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

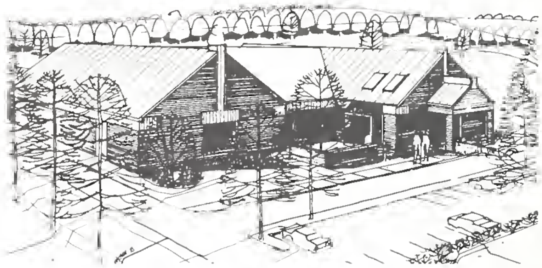
In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:

- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:

- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Medical) for Ophthalmology.
- CO_2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

AMBULATORY CARE

Full or part time position available for physician in the Colchester Immediate Care Medical Center opening mid-April. Salary and benefits negotiable. Please send C.V. to: Dr. Robert Moskowitz, Stonemill Road, Mansfield, CT 06250 or phone (203) 429-6109.

Full time position available for an ambulatory care physician to work in an established walk-in center in the greater Bridgeport area. Please send curriculum vitae to Immediate Health Care, 15 Armstrong Rd., Shelton, CT 06484. Attn: Darlene.

EMERGENCY MEDICINE

Full time position available in a modern progressive 102-bed general hospital in Northeastern Connecticut. Board eligible/certified or prepared in Emergency Medicine with General Surgery, Family Practice or Internal Medicine background preferred. Attractive compensation and benefits. Send CV and benefits to Satya Agarwal, M.D., FACEP, Director, Emergency and Outpatient Services, Rockville General Hospital, 31 Union St., Rockville, CT 06066. Phone (203) 872-0501.

FAMILY PRACTICE

Family Practitioner to practice medicine in a small State psychiatric hospital, located ten minutes from Hartford. As a member of our staff you will work with a neurologist, internist and psychiatrists to evaluate and treat our patients physical problems. Cedarcrest Regional Hospital, a 130 bed facility is accredited and certified to provide acute/intermediate psychiatric treatment. Salary commensurate with experience and training. Excellent benefit package. Connecticut license required. Send C.V. to Robert L. Chesanow, M.D., Cedarcrest Regional Hospital, 525 Russell Road, Newington, Ct. 06111. AA/EEO.

Family/General Practice in urgent care centers providing acute and continuing care. Well-rounded medical background and excellent patient relation skills required. Full and part time positions. Competitive compensation, enjoyable work settings and pleasant ancillary staff. Send C.V. to: PHYSICIANCARE, 60 Church St., Yalesville, CT 06492. (203) 284-9099.

INSTITUTIONAL MEDICINE

Norwich Hospital, a 649 bed State psychiatric treatment facility has an opening for full or part-time physicians. Position responsible for medical diagnosis and treatment of patients. Benefits include a comprehensive medical package, paid leave time, retirement plan and possible housing on grounds. Connecticut license required. Contact: Office of Assistant Superintendent, Clinical; Norwich Hospital, P.O. Box 508, Norwich, CT 06360; (203) 889-7361, Ext. 264. AA/EOE.

Vice President of Medical Affairs. The Connecticut Hospice, Inc., is seeking an individual to provide overall medical supervision. The Vice President serves as medical director for the home care and inpatient hospice program and bereavement team and shares patient care duties with the physician staff. The Connecticut Hospice is licensed in the State of Connecticut as a 44-bed short-term hospital certified by Medicare as a general hospital with a hospital-based home care program, and JCAH accredited. The facility is located near New Haven. Qualifications: Board Certification in a primary care specialty and eight years post residency experience. Familiarity with community based and institutional health care delivery. Demonstrated interpersonal and interdisciplinary skills. Salary negotiable. Please reply by resume to: Rosemary J. Hurzeler, President, The Connecticut Hospice, Inc., 61 Burban Dr., Branford, CT 06405. E.O.E.

SUBSTANCE ABUSE. Central CT, immediate openings for full-time Physicians and Psychiatrists in the Substance Abuse Program. CT Valley Hospital is a JCAH accredited hospital with 96 substance abuse beds for both detoxification and treatment programs in both Alcoholism and Drug Abuse. CT license required. Please send your curriculum vitae to Richard Houser, M.D., Chief of Professional Services, CT Valley Hospital, Box 351, Middletown, CT 06457. AA/EOE.

Health Director, City of Stamford, CT. Candidate must be a physician licensed to the standards of the State of Connecticut and a graduate of a recognized school of Public Health with at least five years' experience in public health work. Requirements include intricate knowledge of preventive medicine, environmental management, school health, social programs and legislative action. Hired individual may not engage in the private practice of medicine, but may operate as chief medical advisor to the school system. Salary range is $55,000 to $70,000 per year with a five year contract. Benefits are available. Please send resume with a cover letter outlining your qualifications for this position by April 30, 1987 to: Sherry Williamson, P.O. Box 10152, Stamford, CT 06904-2152. EOE/AA.

INTERNAL MEDICINE

Internist to practice medicine in a small State psychiatric hospital, located ten minutes from Hartford. As a member of our staff you will work with a neurologist and another internist and psychiatrists to evaluate and treat our patients' physical problems. Cedarcrest Regional Hospital, a 130 bed facility is accredited and certified to provide acute/intermediate psychiatric treatment. Salary commensurate with experience and training. Excellent benefit package. Connecticut license required. Send C.V. to Robert L. Chesanow, M.D., Cedarcrest Regional Hospital, 525 Russell Road, Newington, Ct. 06111. AA/EEO.

For Sale: Practice of Internal Medicine. Excellent location and opportunity. Please call 523-7971.

INTERNAL MEDICINE/REHABILITATION

Well-recognized rehabilitation hospital in Connecticut seeking internist with rehabilitation experience or interest. As the leader of a multidisciplinary team, the physician will be primarily responsible for patients with a variety of neurologic and medical diagnoses. Excellent salary and benefits in pleasant atmosphere with prime opportunity for professional satisfaction. Please send C.V. to: Rose Malfa, M.D., Director, Division of Medical Services, Gaylord Hospital, P.O. Box 400, Wallingford, CT 06492.

OBSTETRICS/GYNECOLOGY

Young Solo OB/GYN, Board Certified seeks BE/BC associate for busy private practice in a beautiful resort community in southern Connecticut. Excellent opportunities for higher education, water recreation, shopping. Easy access to NYC, Boston, Hartford, Cape Cod and skiing. Very stable economy with low unemployment. Please forward CV to: Stanley P. Solinsky, M.D., 449 Montauk Ave., New London, CT 06320.

OTOLARYNGOLOGY

Must have facial plastic surgery training to join busy practice in northwestern Connecticut. Excellent opportunity in well established progressive practice. Board certification preferred. Send CV with reply to CSMS, c/o OTO/TM.

PART TIME

Insurance Medicine. The Equitable Life Assurance Society in Milford, CT is looking for a physician with experience in insurance medicine for intermittent, part-time coverage for their Medical Director. Interested individuals should contact L.E. Daniels, M.D., Medical Director at (203) 783-8379.

PEDIATRICS

Pediatrician. BE/BC. University trained, needed to join solo Pediatrician in semi-rural Western Connecticut. Please call (203) 355-4113.

PRIMARY CARE

Full time physicians for walk-in medical services. West Haven and Milford. Write, CSMS, c/o PC/BY.

PSYCHIATRIST

Norwich Hospital. A 649 bed State psychiatric treatment facility has openings for full time Psychiatrists. Benefits include a comprehensive medical package, paid leave time, retirement plan and possible housing on grounds. Connecticut license required. Contact: Office of Assistant Superintendent, Clinical; Norwich Hospital, P.O. Box 508, Norwich, CT 06360; (203) 889-7361, Ext. 264. AA/EOE.

RADIOLOGY

Radiologist wanted for diagnostic radiology in private office practice in Waterbury area. Full-time associate preferred but will consider part-time. All replies confidential. Reply CSMS, Box RAD/VA.

General radiologist with training in all phases of diagnosic and invasive radiology is being recruited by a six-man group of radiologists in Northeastern Connecticut. Practice includes three offices and a small progressive hospital. The hospital currently offers a full range of services including nuclear medicine, ultrasound and CT unit, new one-day surgical center recently completed, also regional dialysis center and busy outpatient department. Part-time may be considered for this position. Send C.V. to Jonathan Berger, M.D., 142 Echo Drive, Vernon, CT 06066.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

EMERGENCY MEDICINE

April '87. Licensed in Connecticut. Age 57. Presently in practice. Nat'l bds. AB elig. MD, Temple University School of Medicine; Int. and Res., Mary Fletcher Hospital, Burlington, VT. Prefers group, institutional, industrial, Walk-in Clinic and Occupational Health type practice in a medium-sized community. Write, Dwight J. Kresge, M.D., 147 Witches Rock Rd., Bristol, CT 06010.

FAMILY PRACTICE

Oct. '86. Age 58. Presently in practice. FLEX. MD, Univ. of Bologna, Italy; Int. St. Boniface Hospital, Winnipeg, Manitoba, Canada; Res., Health Sciences Center, Manitoba, Canada. Prefers urgent care in a large-sized community. Write, Vito P. Girgenti, M.D., 9 Monk Rd., Warwick, RI 02889. Tel: (401) 732-3112.

GENERAL SURGERY

July '87. Age 34. Licensed in Connecticut. Presently in practice. Nat'l bds. AB cert. MD, American University of Beirut; Int., St. Mary's Hospital, Waterbury, CT; Res., Hospital of St. Raphael, New Haven, CT; Fellowship, Texas Heart Institute, Houston, TX. Prefers solo, group or associate type practice in a medium-sized community. Write, Akram Hassanyeh, M.D., Box 609, McDowell, KY 41647.

INTERNAL MEDICINE

Immediately available. Age 44. Licensed in Connecticut. Presently in practice. FLEX. AB elig. MD, Royal College of Surgeons, Ireland; Int. and Res., McKeesport Hospital, McKeesport, PA; Fellowship, Mt. Sinai Hospital, Hartford, CT and Yale University, New Haven, CT (oncology). Prefers solo type practice. Write, Eric N. Grosch, M.D., 25 Peddler Dr., Windsor, CT 06095.

GERIATRICS. July 1987. Age 51. Nat'l bds. AB elig. MD, Sto. Tomas, Philippines; Int., Brookdale Hospital and Medical Center, Brooklyn, NY; Res., Catholic Medical Center, Queens, NY; Fellowship, St. Barnabas Hospital, Bronx and Elmherst City Hospital, Queens, NY. Wishes to work in an ambulatory care setting or in solo practice with guaranteed salary. Write, CSMS, c/o LGT/IM.

June '87. HEMATOLOGY/ONCOLOGY. Age 32. AB elig. MD, Universidad Nordestana, Dominican Republic; Int. and Res., Jamaica Hospital, Jamaica, NY; Fellowship, St. Luke Roosevelt Hospital Center, NYC and St. Michael's Medical Center, Newark, NJ. Prefers group or associate type practice in a medium-sized community. Write, Robert K. Gamble, M.D., 160-11 96th Street, Howard Beach, NY 11414.

OTOLARYNGOLOGY

July '87. Age 35. Presently in practice. Nat'l bds. AB cert. MD, George Washington University, Int. and Res., Walter Reed AMC. Prefers solo, group or associate type practice in a coastal community preferably Fairfield County. Write, Radu Mihail, M.D., 319 So. Beltline Blvd., 9F, Columbia, SC 29205.

PATHOLOGY

Immediately available. Age 39. Nat'l bds. AB cert. MD, Autonomous University of Sto Dgo, Dominican Republic; Int., "Enrique Lithgow Care," Sto Dgo., Dominican Republic; Res., Danbury Hospital, Danbury, CT. Prefers group, associate or institutional type practice. Write, Nelson J. Urena, M.D., 60 Rosebrook Dr., Stratford, CT 06497.

PEDIATRICS

July '87. Licensed in Connecticut. Age 33. FLEX. AB elig. MD, Far Eastern University, Manila, Philippines; Int., Iloilo Provincial Hospital, Philippines; Res., The Brooklyn Hospital, Brooklyn, NY. Any type practice acceptable in a medium-sized community. Write, CSMS, c/o AHC/PED.

Connecticut Medicine

Vol. 51, No. 5 *The Journal of the Connecticut State Medical Society* May 1987
160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587

CSMS OFFICERS

Joseph C. Czarsty, M.D. Oakville
President
James P. Orphanos, M.D., Greenwich
President-Elect
Norman A. Zlotsky, M.D., Rockville
Vice-President
Annemarie Welch, M.D., New Britain
Secretary
Robert R. McDonnell, M.D., New Haven
Treasurer
Lawrence B. Ahrens, M.D., Newington
Speaker of the House of Delegates
Mehdi S. Eslami, M.D., Waterbury
Vice-Speaker of the House of Delegates

AMA DELEGATES

Edward A. Kamens, M.D., Fairfield
  Isadore H. Friedberg, M.D., Newington, *Alternate*
Guy W. Van Syckle, M.D., Danbury,
Chairman of the Council
  William A. Whalen, Jr., M.D., Willimantic, *Alternate*
Frank K. Abbot, M.D., Hartford
  Jerome K. Freedman, M.D., New Haven, *Alternate*
Stewart J. Petrie, M.D., Derby
  Joseph S. Sadowski, M.D., Hartford, *Alternate*

COUNCILORS

Robert P. Ragusa, M.D., Bridgeport
Fairfield County
Roger S. Beck, M.D., Wethersfield
Hartford County
Alfred J. Finn, Jr., M.D., Torrington
Litchfield County
Richard T. Sweet, M.D., Middletown
Middlesex County
Geroge A. Bonner, M.D., New Haven
New Haven County
Jerome Bobruff, M.D., New London
New London County
Gerald L. Schwartz, M.D., Rockville
Tolland County
Sherman L. Waldron, M.D., Thompson
Windham County

ASSOCIATE COUNCILORS

Turpin Rose, M.D., Danbury
Fairfield County
Howard J. Wetstone, M.D., Hartford
Hartford County
John J. O'Brien, M.D., Hartford
Hartford County
W. Peter Reyelt, Jr., M.D., Sharon
Litchfield County
Kenneth Robbins, M.D., Middletown
Middlesex County
Theodore Zanker, M.D., New Haven
New Haven County
Marvin Fox, M.D., Milford
New Haven County
Sultan Ahamed, M.D., Norwich
New London County
Arturo D.P. Villa, M.D., Somers
Tolland County
Kenneth R. Dardick, M.D., Storrs
Windham County

COUNCILOR AT LARGE

W. Raymond James, M.D., Essex

Editor	Robert U. Massey, M.D.
Literary Editor	Sherwin B. Nuland, M.D.
Editor Emeritus	J. Alfred Fabro, M.D.
Assistant to the Editor	Vivian C. Feriola
Staff Assistant	Valerie A. Redman

Editorial Board

Family Practice	Dewees H. Brown, M.D.
Cardiology and Internal Medicine	Martin Duke, M.D.
Psychiatry	Stephen Fleck, M.D.
Dermatology	Robert D. Greenberg, M.D.
Nephrology and Internal Medicine	William A. Handelman, M.D.
Infectious Diseases and Internal Medicine	David P. Johnson, M.D.
General Surgery	Kirk K. Kazarian, M.D.
Pathology and Hemotology	Ramon N. Kranwinkel, M.D.
Pathology	John L. Meyer, M.D.
Public Health	Hans H. Neumann, M.D.
Diagnostic Radiology	M.B. Ozonoff, M.D.
Obstetrics and Gynecology	Stewart J. Petrie, M.D.
Neurosurgery	Melville P. Roberts, M.D.
Cardiology	Michael A. Rossi, M.D.
Internal Medicine and Rheumatology	Robert T. Schoen, M.D.

CSMS Staff

Executive Director	Timothy B. Norbeck
Associate Executive Director	Josephine P. Lindquist
Director of Public Affairs	Raymond T. Sullivan
Director of Special Programs	Cameron C. Staples
Coordinator Medical Courtesy Card	Margaret K. Connelly
Membership Department	Dorothy M. Stratton
Placement Service	Valerie A. Redman
Management Information Systems	Deborah P. Titus
Accountant	Marc A. Sullivan
Secretary	Patricia A. King
Secretary	Denyse M. Malboeuf

Diaphragmatic Hernias of Morgagni

MARIA MARTINS, R. LEONARD KEMLER, M.D., JOHN C. RUSSELL, M.D.
AND GERALD O. STRAUCH, M.D.

ABSTRACT—Of the various types of diaphragmatic hernias, the Morgagni hernia is the rarest in all age groups. The first description of this condition was made by Morgagni in 1769 during an autopsy of an elderly Italian stonecutter who died without evidence of trauma to the diaphragm.[1] Despite herniation of the colon into the chest via an opening beneath the sternocostal junction, the patient reportedly had been asymptomatic. Since that time, Morgagni's hernia has also been referred to as retrosternal hernia and Larrey's hernia (after Larrey, the Surgeon General for Napoleon, who described a surgical approach to the pericardial cavity through an anterior diaphragmatic defect).[2,3]

The following case report illustrates the clinical presentation, diagnostic procedures, and surgical outcome of a right lower chest mass found on routine chest x-ray of a 30-year-old male two years prior to its surgical removal.

Case Report

A healthy 30-year-old male was found to have on routine chest x-ray a well-defined shadow in the right lower chest, anterior to the right cardiophrenic angle. Because he was totally asymptomatic, he was followed clinically by serial chest x-rays at six to twelve month intervals. Over a two-year period, the lesion increased to three to four times it original size (Figures 1-3). On x-ray, the lesion was characterized as a large opaque mass occupying most of the right lower lobe area (Figure 1).

The patient had a history of asthma since childhood and a two-year history of increasing heartburn and substernal chest pain. The chest pain was described as "tightening," unrelated to the asthmatic attacks, nonradiating, and often associated with athletic activities. The pain was more pronounced when he was in the right lateral decubitus position. There was no shortness of breath accompanying the pain. He had occasional heartburn, relieved by antacids, but no other gastrointestinal symptoms. Initially the chest pain would gradually resolve over ten to twelve days after onset and occurred approximately once every three to four months following physical exertion. However, during the two-year period, the chest pain became more frequent and was unassociated with activity. The patient denied weight loss, fever, chills, history of trauma, pneumonia, tuberculosis, asbestos exposure, or other environmental exposures.

On physical examination, he was a moderately obese male in no apparent distress. Vital signs revealed a pulse of 88 per minute, blood pressure 133/80, respirations 14 per minute and unlabored. Examination of the head, neck, heart, and lungs was unremarkable. There was no dullness to percussion in the chest, and the cardiac impulse was not displaced. Abdominal examination was unremarkable, and no bowel sounds were appreciated on chest auscultation.

Laboratory investigation revealed a hemoglobin of 16 gm/100 ml, white blood cell count of 12,100/mm^3 with 71 polymorphonucleocytes, 5 bands, 1 eosinophil, 16 lymphocytes, and 7 monocytes; blood urea nitrogen, liver function tests, serum glucose, and electrolytes were within normal limits.

Two weeks following the chest x-ray findings, the patient underwent an upper gastrointestinal series and barium enema, both of which were normal and without evidence of malrotation. A CT scan of the chest showed a hypodense, well-delineated mass pushing against the right lower lobe and the base of the pleura anteriorly.

Because of increasing symptoms and presence of an enlarging mass, the patient underwent surgery. He was exlored through a right posterolateral thoracotomy. A right Morgagni hernia was found in a sac measuring 20x10 cm in size. The sac contained only omentum and was associated with multiple mediastinal adhesions. The hernial sac and its contents were excised without difficulty, and the diaphragmatic defect was repaired with 2-0 silk sutures. The patient's postoperative course was unremarkable, and he was discharged home on the sixth postoperative day.

Discussion

A hernia through the foramen of Morgagni is the rarest form of diaphragmatic hernia. The incidence varies depending upon age. Comer and Clagett in 1966 reviewed the Mayo Clinic records over 32 years and reported that of 1,750 patients operated on for diaphragmatic hernias, 3 percent of the hernias were of the Morgagni type.[4] In children, the incidence has been estimated at 4.3% of all diaphragmatic hernias.[5]

Diaphragmatic hernias become apparent at any age by obstruction of the gut, by recurring abdominal pain, or by vague dyspepsia. The predominance of posterolateral hernias in infancy is supplanted as age advances by hiatal and traumatic hernias. The incidence of hiatal hernias has been reported as 72% of all diaphragmatic hernias in adults whereas for traumatically induced diaphragmatic hernias, the incidence is about 12% in the adult population.[5,6]

Morgagni hernias are classified as congenital or acquired. An understanding of congenital diaphragmatic

---

MARIA MARTINS, Senior Medical Student, University of Connecticut School of Medicine, Farmington, CT. R. LEONARD KEMLER, M.D., Senior Attending, Department of Surgery, New Britain General Hospital; Assistant Clinical Professor of Surgery, University of Connecticut School of Medicine. JOHN C. RUSSELL, M.D., Chief of Surgery, Veterans Administration Medical Center, Newington, CT; Associate Professor and Interim Chairman, Department of Surgery, University of Connecticut School of Medicine. GERALD O. STRAUCH, M.D., Chief of Surgery, New Britain General Hospital, New Britain, CT; Professor of Surgery, University of Connecticut School of Medicine.

hernias requires an appreciation of the embryologic development of the diaphragm. Embryologically, the diaphragm is derived from three main components: the septum transversum, the pleuroperitoneal membrane with its support from the lateral and dorsal body walls, and the dorsal and esophageal mesentery. The central tendon of the diaphragm is derived from the septum transversum and occupies the space beneath the heart and pericardial cavity and the stalk of the yolk sac. This forms beneath the heart between the eighth and tenth weeks of fetal life and migrates dorsally until it fuses with the mesentery of the foregut. It is this mesentery which will become the diaphragmatic crura.

The posterior and lateral aspects of the diaphragm are normally derived from the pleuroperitoneal folds which obliterate the connection between the thoracic and abdominal portions of the coelemic cavity. A posterolateral fold of mesenchyme from the lateral and dorsal bodies adds support and creates a plane for myoblastic cells to migrate into the pleuroperitoneal membranes. These muscle-forming cells are derived from the third through the fifth cervical segments, giving the diaphragm its

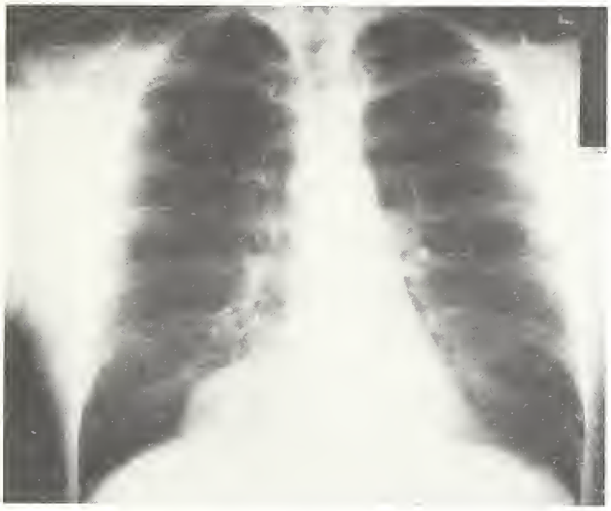


Figure 1a

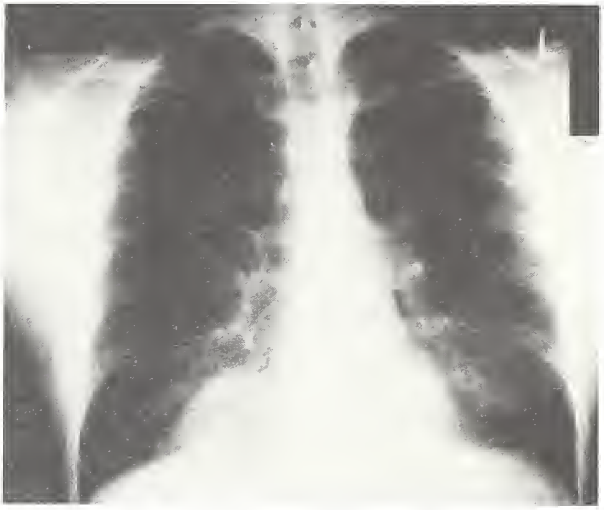


Figure 2a

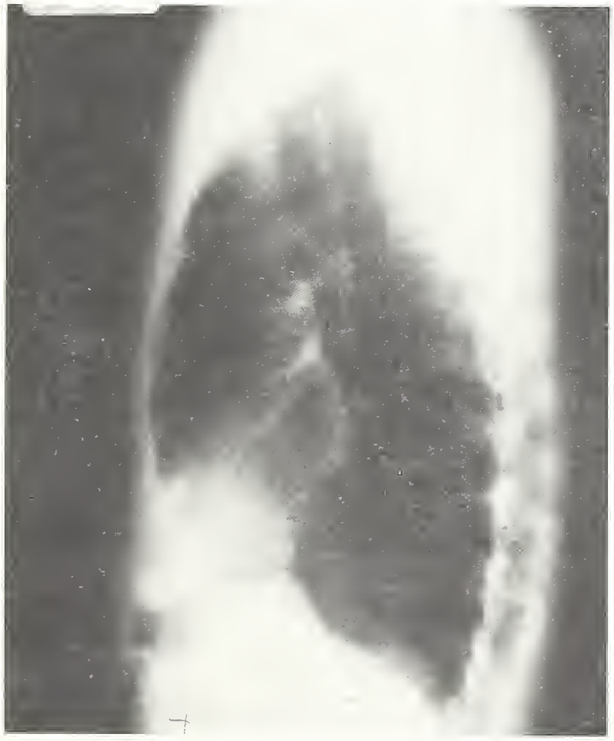


Figure 1b
Chest x-ray, PA (a) and lateral (b) of initial presentation showing a right-sided substernal chest mass.

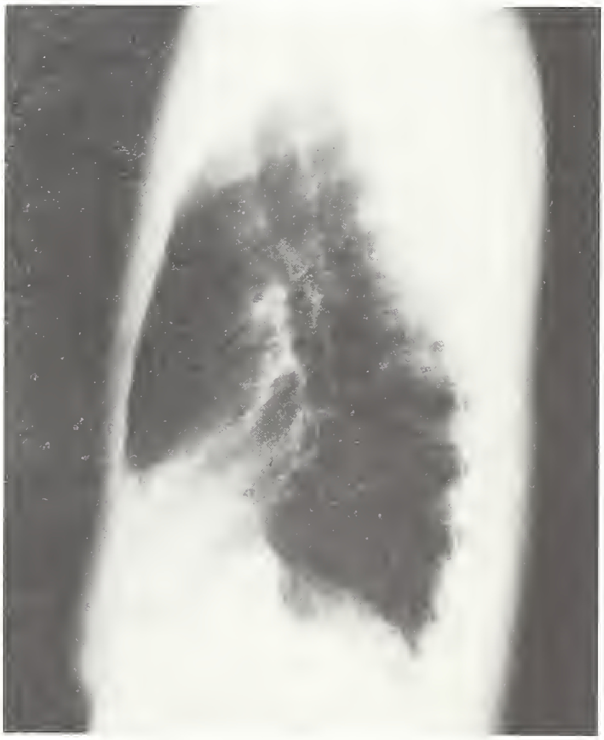


Figure 2b
Chest x-ray, PA (a) and lateral (b), 18 months later.

phrenic nerve innervation. The left fuses later than the right, and the posterior segments close last. If there is a failure in fusion or of muscularization of the pleuroperitoneal membrane posteriorly, a foramen of Bochdalek will be created through which a hernia may arise. Similarly, developmental failure of the anterior part (in the retrosternal segment of the septum transversum) may result in a foramen of Morgagni through which a hernia may arise (Figure 4).

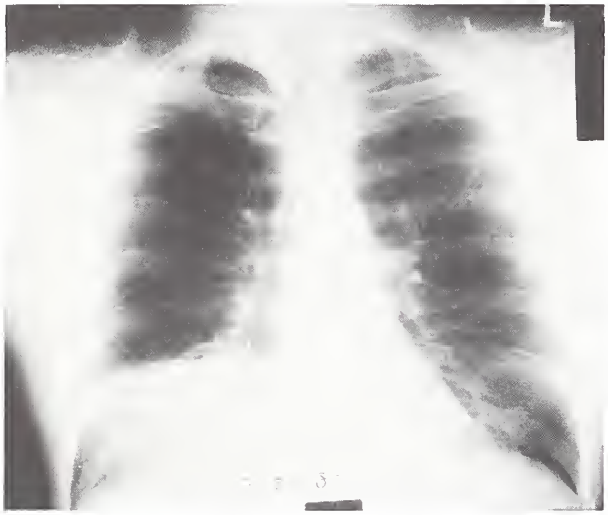


Figure 3a

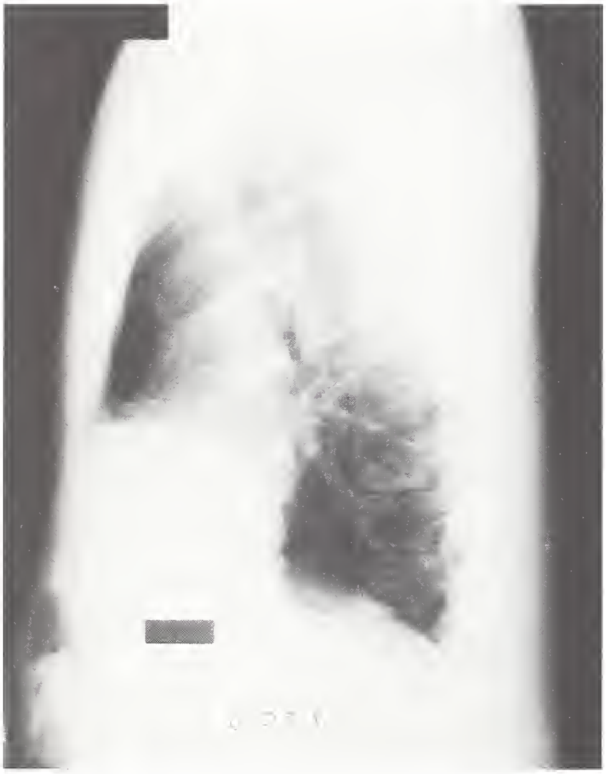


Figure 3b
Chest x-ray, PA (a) and lateral (b), prior to surgery.

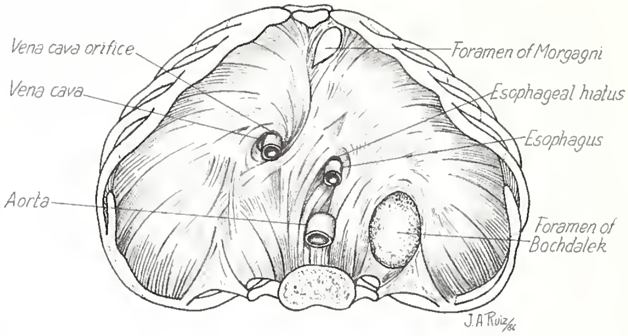


Figure 4
Anatomical drawing of diaphragm from below. In this drawing the foramen of Morgagni appears on the left side whereas in the case presented the hernia is on the right side. (Illustration of diaphragm adapted from Eskreis D, Cohen MN, Fleischner G: Nausea, vomiting and chest pain in a healthy young woman. In: Primary Cardiology, May 1986, Vol 12, No 5, pg 97, with permission from author.)

A point of potential weakness may be caused by the superficial epigastric artery which has been found to run through the foramen of Morgagni. This might cause a potential space not in the diaphragm, but in the fibers of the transversus abdominis and posterior lamina of the rectus sheath.[7] This space may enlarge with increasing intra-abdominal pressure, eventually giving rise to hernia development. Failure of the myoblastic poliferation within the septum transversum or failure of fusion between the anterior ribs, costal cartilage and the sternum may also be potential sites for herniation.[8]

A Morgagni hernia occurs more frequently on the right than on the left. The added support of the heart and pericardium reinforces the left side of the anterior diaphragm and protects agains herniation. It has been estimated that 90% of the Morgagni hernias occur on the right; 8% are bilateral.[7] The hernia usually involves a sac and may extend into the pericardial cavity. Most commonly this hernia contains transverse colon and omentum, but liver, stomach, and small intestine may also be contained within the hernial sac.

In cases where two weak areas develop, two hernial sacs may form in the subcostosternal diaphragm. The occurrence of bilateral herniae in this location has been attributed also to the passage of the terminal branch of the internal thoracic artery, vein, and lymphatics (Larrey's fissure) from the abdominal wall and convex surface of the liver through the anterior portion of the diaphragm.

Kelly and Bassett have contradicted the theory that the frequently found anatomic defect is caused by the failure of the diaphragm to attach to the costal cartilage and sternum.[2] During an autopsy study of one patient, they found the usual defect in the mid-anterior diaphragm with no hernial sac. Pericardiodiaphragmatic attachment is thought to prevent entrance of the herniated contents to the left side of the midline in the anterior mediastinum.

While many Morgagni hernias are congenital, some may be acquired by blunt trauma. It is estimated that 95% or more of diaphragmatic injuries result from penetrating or blunt injuries to the lower thorax or abdomen.[6,7,9] Blunt injury seems to produce larger defects than penetrating wounds. Blunt injuries most commonly involve the left leaflet of the diaphragm. This is perhaps due to the protective role of the liver. Gunshot and stab wounds may cause damage to either side indiscriminately.

If herniation results, it may not always manifest itself immediately after the injury. Delayed traumatic diaphragmatic hernias may not be diagnosed for weeks or years after injury. As a general rule, it is thought that strangulation and incarceration are more prone to occur from smaller defects than from larger ones because of the "dumbbell effect." It is believed that with time and continued negative intra-thoracic pressure, suctioning through the defect can occur. Intra-abdominal pressure caused by obesity is another factor which may precipitate internal herniae.

The symptoms associated with a Morgagni hernia are variable and depend upon the age of the patient and the contents of the hernial sac. In the neonate, if it presents with cyanosis or cardiac disease, a Bochdalek's hernia must first be ruled out since it is more common. Most of the patients who present with symptoms of a Morgagni hernia are over age 40. In a large number of patients, the hernia may cause no symptoms and only be diagnosed on routine chest x-ray or at autopsy. In other patients, pressure exerted by the hernial contents on intra-thoracic structures or as a result of incarceration or traction on abdominal organs causes dyspnea, retrosternal pressure, coughing, precordial pain, palpitations, recurrent respiratory infections, vomiting, diarrhea, and upper abdominal pain or indigestion.

The physical examination is usually not helpful in patients with Morgagni's hernia, although peristaltic sounds may be audible in the chest cavity. The essential way of diagnosing this hernia is by chest x-ray. The lateral chest x-ray can localize the hernia in the anterior aspect of the chest. This anterior lesion on a lateral chest x-ray has come to be known as the "sign of the cane." [10] This is a radiographic finding demonstrating a parietal-properitoneal-peritoneal line that is present substernally and looks like the profile of a cane handle. If there is a solid mass at the cardiodiaphragmatic border, a technetium scan of the liver should be performed to determine if any portion of the liver lies in the subdiaphragmatic position. If air is found in the lesion on chest x-ray, contrast studies of the stomach, small intestine, and large bowel can be performed. A pneumoperitoneum study may also be done in cases where one needs to differentiate a diaphragmatic hernia from a tumor in the chest cavity. [11] Finally, barium enema and CT scan may be used in identifying the structures in the hernial sac. [11-14]

The treatment for a symptomatic Morgagni hernia, whether acquired or congenital, is surgical, regardless of the patient's age.[4,15,16] The indications for operating in asymptomatic adults is controversial. In children, surgical correction is advisable. With growth of the child, the corresponding increase in the amount of fat in the mesentery and omentum may lead to a greater risk of intestinal obstruction. [8] Also, recurrent subacute obstruction may cause inflammatory changes and adhesions, rendering any subsequent surgery more difficult. Traumatic lacerations of the diaphragm do not heal spontaneously and require surgical repair as soon as the diagnosis is made and the patient's condition permits.

The surgical approach may be transthoracic or transabdominal. The transthoracic approach allows for direct access to the hernial sac, facilitating the release of adhesions and repair of the diaphragmatic defect. The transabdominal approach permits the surgeon to deal at the same time with other pathologic features that may be encountered in the abdominal cavity, and it allows repair of a bilateral Morgagni hernia. [3,17]

The diaphragmatic defect can be sutured to the posterior rectus sheath and to the chest wall in most cases with permanent suture material. In patients with a large defect, a plastic prosthesis, Marlex mesh prosthesis or a Dacron or Gore-Tex patch may be used to secure closure of the defect in the diaphragm.

The results of surgical repair of Morgagni herniae are excellent. In reported series, there have been no operative deaths [8,18,19] and few significant complications. [20] Finally, there have been few recurrences following initial surgical repair. [21] An aggressive operative approach to all children and to symptomatic adults is thus recommended.

REFERENCES

1. Missen AJB: Foramen of Morgagni hernia. Proc R Soc Med 1973, 66:654-656.
2. Kelly KA, Bassett DL: An anatomic reappraisal of the hernia of Morgagni. Surgery 1964, 55:495.
3. Saha SP, Mayo P, Graydon L: Surgical treatment of anterior diaphragmatic hernia. South Med J 1982, 75(3):280-281.
4. Comer TP, Clagett OT: Surgical treatment of hernia of the foramen of Morgagni. J Thorac Cardiovasc Surg 1966, 52:461-468.
5. Gray FJ: Strangulated hernia of the foramen of Morgagni: introducing a principle for the reduction of obstructed intra-abdominal herniae. Aust NZ J Surg 1981, 51(3):314-317.
6. Estrera AS, Platt MR, Mills LJ: Traumatic injuries of the diaphragm. Chest 1979, 75(3):306-313.
7. Sabiston DC, Spencer FC: Gibbon's Surgery of the Chest, Fourth Edition 1983, Philadelphia, WB Saunders Co, 2:833-835.
8. Ravitch MM: Foramen of Morgagni hernias in children. Surgery 1967, 62(6):1076-1081.
9. Hinshaw HC, Murray JF: Diseases of the Chest, Fourth Edition 1980, Philadelphia, WB Saunders Co, pp 924-930.
10. Lanuza A: The sign of the cane. Radiology 1971, 101(2):293-296.
11. Wickstrom P, Helseth HK: Foramen of Morgagni hernia. Minn Med 1973 (56)8:671-673.
12. Fagelman D, Caridi JG: CT diagnosis of hernia of Morgagni. Gastrointest Radiol 1984, 9(2):153-155.
13. Wolloch J, Grunebaum M, et al: Symptomatic retrosternal (Morgagni) hernia. Am J Surg 1974, 127(5):601-605.
14. Dawson R, Jansing WJ: Case report: foramen of Morgagni hernias. J Ky Med Assoc 1977, 75(7):325-327.
15. Pokorny WJ, McGill CW, Harberg FJ: Morgagni hernias during infancy: presentation and associated anomalies. J Pediatr Surg 1984, 19(4):394-397.

CSMS Members:

Let's Talk About A New Concept In Health Care.

Century 2000.

Century 2000. A Preferred Provider Program in which more than 4,000 health care providers in this state are now participating.

Century 2000. Providing quality with an emphasis on preventive care.

Century 2000. Reducing costs by encouraging members to use its managed care network of Preferred Providers.

Century 2000. For information on how you can become a Preferred Provider call 1-800-922-1742 extension 5137.

Blue Cross
Blue Shield
of Connecticut

16. Beck AR, Reiner MA, Bleicher M: Unusual Problems in Surgery: Diaphragmatic Hernia of Morgagni. Division of Surgery, City Hospital Center at Elmhurst, Mount Sinai School of Medicine 1979, pp 796-805.

17. Moghissi K: Operation for repair of obstructed sternocostal (Morgagni) hernia. Thorax 1981; 36:392-394.

18. Randolph Y, Bush M, Abramowitz M, Kleiman D, Montali RJ: Surgical correction of familial diaphragmatic hernia of Morgagni in the Goldon Lion tamarin. J Pediatr Surg 1981, 16(3):396-401.

19. Ketonen P, Mattila SP, Mattila T, Y'Arvinen A: Surgical treatment of hernia through the foramen of Morgagni. Acta Chir Scan 1975, 141(7):633-636.

20. Thomas GG, Clitheron NR: Herniation through the foramen of Morgagni in children. Br J Surg 1977, 64(3):215-217.

21. Contini S, Bonati L, Villani LG, Chetter A: Case of retrosternal Morgagni-Larrey hernia. Acta Biomed Ateneo Parmense 1982, 53(5):353-360.

The Incidence of Nosocomial Infections in a Skilled Nursing Facility

RONALD GUGLIOTTI, M.H.S.

ABSTRACT – In 1980 an infection control program was established at a 58 bed skilled nursing facility, using a modified infection control program which had been established in an acute care hospital. A five year prospective study was conducted from January 1981 to December 1985 to assess the incidence of nosocomial infections in elderly nursing home patients. The average annual incidence of nosocomial infection was 0.25 infections per 100 patient days. The average age of the patients studied was 85 years. The incidence of nosocomial infections was the same in males and females ($P > .05$). The most common type of infection was an upper respiratory infection (46.20%) followed by urinary tract infection (26.60%) and lower respiratory infection (11.33%). *E. coli* was the most common organism isolated from all infections cultured. There was a documented outbreak of upper respiratory disease each year of the study in the months of October through March ($P < .01$). In a random sample of 30 patients the average length of stay prior to the development of first nosocomial infection was eight months. Infection control programs in skilled nursing facilities aid in identifying and controlling potentially serious infections and add to the quality of care provided to our elderly nursing home patients.

Introduction

The incidence of nosocomial infections in elderly nursing home patients has not been well studied. A one day prevalence study[1] done at several facilities placed the prevalence rate at 16.20%. A more comprehensive prospective study on the incidence of nosocomial infection in the nursing home setting[2] revealed an incidence rate of 0.67 infections per 100 patient days. Other studies have suggested that nosocomial infections are highly prevalent in nursing home patients.[3,4] More recent studies have examined the scope of infection control practices in the nursing home setting.[5,6]

Life expectancy continues to grow for the over 65 year old population in the U.S. There is little doubt that the U.S nursing home population will continue to increase as long as resources are available. Many, if not all, of these patients are at increased risk of developing infection complications during their nursing home stay. Administrators of long term care are committed to providing a satisfactory quality of care to patients but have been slow in implementing aggressive infection control programs. Research on preventive techniques aimed at reducing the incidence of nosocomial infections in nursing homes, coupled with research on the physiologic changes associated with the aging process, may lead to a lower incidence of nosocomial infections.

The following study was aimed at determining the incidence of nosocomial infection in a 58-bed skilled nursing facility over a five year period.

RONALD GUGLIOTTI, M.H.S., Hospital Epidemiologist, Section of Epidemiology, St. Mary's Hospital, Waterbury, CT.

Methods

In the fall of 1980, infection control policies and procedures were formulated for all departments and services in a 58-bed skilled nursing facility. The policies and procedures were submitted to the Infection Control Committee in December 1980 and implemented in January 1981. The policies and procedures approved were all based on those used in an acute care hospital. Changes were made when indicated. Policies and procedures ranged from handwashing to Foley care to isolation guidelines, etc. Table 1 lists all policies and Table 2 lists all procedures currently in use.

Table 1
INFECTION CONTROL POLICIES CURRENTLY IN USE

Function of the Infection Control Committee
Membership on the Infection Control Committee
Reporting of Nosocomial Infections
Reporting of Communicable Diseases
General Guidelines of Asepsis
Use of Foley Catheters
Isolation Policies
Dietary Policies
Housekeeping Policies
Storage of Cleaning Materials
Respiratory Therapy
Sterility Testing
Use of Disposables
Antibiotic Monitoring
Obtaining Temperatures in Febrile Patients
Use of Suction Catheters
Use of 0-2 Humidifiers
Use of Nasal Cannulas
Rotation of Supplies

Table 2
SUMMARY OF PROCEDURES CURRENTLY IN USE

Handwashing
Disinfection of Wheelchairs
Laundering of Linen and Personal Clothing
Handling of Soiled Linen
Obtaining a Urine Specimen
Catheterization of the Male and Female Patient
Terminal Cleaning of an Isolation Room
Straight Catheterization
Cleaning Thermometers
Cleaning Water Pitchers
Dressing Changes
Cleaning of Bed Pans and Urinals
Catheter Care

The Infection Control Committee was chaired by a physician, and included two additional physician members, an administrator, director of nurses, infection control nurse, pharmacist, dietary director, housekeeping supervisor, and an infection control consultant from an acute care facility.

The facility consisted of two wings and 58 beds. One room on each wing was private, and all others were doubles. The two private rooms were also designated as isolation rooms; a nursing station was located on each wing.

The patient population consisted of 58 patients over the age of 65. The average occupancy rate was 96%. The facility had 12 male and 46 female patients. Thirty-six percent (21/58) of the patients were not ambulatory and 80% (46/58) of the patients were incontinent. During the study period the number of patients with indwelling Foley catheters averaged four. Reusable diapers were used on all incontinent patients.

Surveillance for the presence of a nosocomial infection was done on a weekly basis. Four hours each week were devoted to infection control activities. Monitoring of culture results in patients was done daily.

A "Patient Reporting Form" was initiated for all patients with a nosocomial infection containing pertinent information related to the patient's infection (name, room, site, organisms, etc.). An evaluation of underlying disease as documented by the patient's attending physician was done for each patient. Influenza and pneumococcal vaccines were available to all patients beginning in the fall of 1980.

Nosocomial infections were defined utilizing the Center for Disease Control guidelines.[7] In addition to the CDC guidelines, other symptoms such as lethargy, irritability, and any purulent discharge were added when appropriate. Infection with the same organism at the same anatomical site within 30 days of isolation was considered a relapse unless the antibiogram suggested otherwise.

- Antibiotic usage patterns were evaluated beginning in 1981 and yearly thereafter.
- Inservice education was provided quarterly beginning in January of 1981 on a variety of topics related to infection control.
- The employee health policies included a pre-employment physical and tuberculin skin test.
- A "Weekly Review Sheet" was instituted to document deficiencies and infractions in infection control policies and procedures. The weekly review aimed to identify and correct deficiencies as they arose. Chronic deficiencies were reviewed by the Infection Control Committee and recommendations for corrective action were made.

Review of the facility by the State of Connecticut, including the infection control program, occurred yearly.

Results

From January 1981 to December 1985, 235 nosocomial infections were identified in 120 patients. The average annual incidence of nosocomial infection over the period was 0.25 infections per 100 days (range 0.19 to 0.30). Table 3 summarizes the type and yearly incidence of nosocomial infections. No significant differences in infection rate existed between males and females ($P > .05$). The average age of all patients studied was 85 years of age.

Upper respiratory infections (46.2%), followed by urinary tract infections (28.60%) and lower respiratory infections (11.33%), were the most common types of infections identified. The remaining 13.87% consisted of gastrointestinal, skin, and conjunctival infections. Of the 235 documented infections only 79 were cultured; 72 were positive for clinically significant organisms. Table 4 lists the organisms in order of prevalence. All organisms were resistant to one or more antibiotics. The antibiotic profiles of all gram-negative isolates are shown in Table 5. Table 6 lists the antibiotic profiles for all gram-positive organisms.

In Table 5 and 6 comparison sensitivities are given for identical organisms isolated in a 347 bed community teaching hospital and organisms isolated from community acquired infection.

In 30 patients chosen at random (24 females and 6 males) the average length of stay prior to the development of a first nosocomial infection was eight months (range 1-20 months).

Table 3

TYPES AND INCIDENCE OF NOSOCOMIAL INFECTIONS FROM JANUARY 1981 TO DECEMBER 1985

Infection Type	*1981*	*1982*	*1983*	*1984*	*1985*
UTI	13	10	9	15	20
URI	14	22	25	30	17
LRI	4	5	5	7	6
Skin	2	5	4	2	5
GI	1	1	1	1	0
Conjunctivitis	2	3	1	3	4
TOTAL	M-6 36 F-30	M-7 46 F-38	M-4 45 F-41	M-12 57 F-45	M-6 52 F-46
Incidence/ 100 patient days	.19	.25	.24	.30	.27

Table 4

NUMBER OF ISOLATES FROM ALL SITES CULTURED

Organisms	*# Isolates*
E. Coli	16
Ps. Aeruginosa	14
S. Aureus	10
S. Epidermidis	8
K. Pneumoniae	6
P. Mirabilis	5
Providencia sp.	5
Enterobacter sp.	4
Enterococcus	4

Table 5

COMPOSITE SENSITIVITIES OF 50 GRAM NEGATIVE ISOLATES NUMBERS REPRESENT PERCENT SENSITIVE. ENTEROCOCCUS IS NOT INCLUDED.

	ECF	*Acute Care Hospital*[a]	*Community*[b]
Ampicillin	30.00	13.00	48.00
Cephalothin	52.50	24.00	67.00
Chloramphenicol	60.00	48.00	72.00
Gentamicin	95.00	82.00	96.00
Carbenacillin	90.00	76.00	90.00
SXT	87.50	76.00	92.00
Amikacin	100.00	98.00	100.00
Nitrofurontoin	77.50	50.00	67.00

[a,b] Data collected at a 347 bed acute care hospital between January and March 1986.

Table 6

COMPOSITE SENSITIVITIES ALL 18 GRAM POSITIVE ORGANISMS ISOLATED DURING THE STUDY PERIOD. NUMBERS REPRESENT PERCENT SENSITIVE ENTEROCOCCUS IS NOT INCLUDED.

	ECF	*Acute Care Hospital*[a]	*Community*[b]
Penicillin	11.11	10.00	25.00
Methacillin	72.22	70.00	90.00
Erythromycin	72.22	60.00	85.00
Chloramphenicol	88.89	90.00	95.00
Tetracycline	66.67	60.00	80.00
Cephalothin	88.89	75.00	95 00

[a,b] Data collected at a 347 bed acute care hospital between January and March 1986.

Patients with a nosocomial infection had an average of two underlying diseases; the most common were arteriosclerotic heart disease followed by congestive heart failure, diabetes, chronic obstructive pulmonary disease, and neurological deficits.

A documented outbreak of upper respiratory infection occurred each year of the study between October and March ($P < .01$). See Figure 1. Each outbreak was preceded by an increased incidence of upper respiratory illness in the community and staff as documented by an increase in the number of sick days by staff for "cold" symptoms. One documented outbreak of catheter associated UTI occurred during the study period. The infections were caused by an identical species of *E. coli*, according to the antibiogram. The source of the outbreak was never identified, although improper handwashing practice was highly suspected. After reinforcement of aseptic techniques and handwashing practices the outbreak subsided.

Isolation in a private room was never necessary. All isolations were either drainage/secretion precautions or contact isolation.

From January 1981 to December 1985 the mean number of days of empiric antibiotic therapy dropped from an

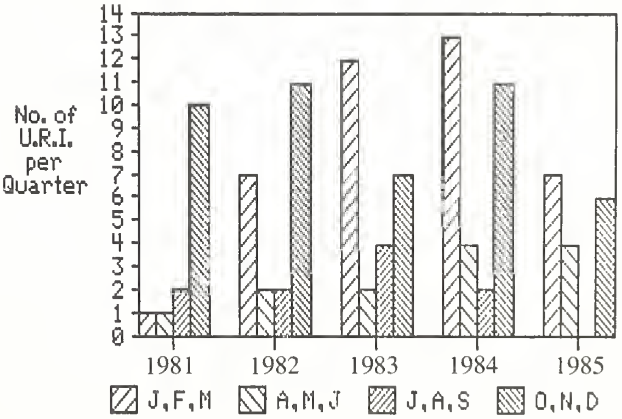


Figure 1

Quarterly Incidence of Upper Respiratory Infections over a Five Year Period average of 7.5 days to 5.5 days ($P < .05$). Of the 64 patients in whom antibiotics were reviewed, the order of prevalence of use was amoxicillin,[17] trimethoprim sulfamethoxazole,[16] erythromycin,[12] cephalothin,[11] cefaclor[5] and tetracycline.[4]

During the study period 260 weekly report sheets were filed. One hundred fifty six of the 260 weekly report sheets (60%) contained documented deficiencies in infection control practices. The most common deficiencies were 1) improper handling of linen and soiled materials (52), 2) deficiencies in housekeeping practices (40), 3) improper dietary practices such as the lack of hair nets and uncovered food items,[13] and 4) improper dating and rotation of supplies.[7]

In the fall of 1980, seven of 58 patients (12.07%) received influenza vaccine. A recommendation for the use of influenza vaccine was made by the ICC in 1980.[8] By the fall of 1981, 55 of 58 patients were receiving influenza vaccine (94.83%) ($P < .01$). In the fall of 1981, the infection control committee recommended that all patients receive the 14-valent pneumococcal vaccine as recommended.[9] By the fall of 1982, 54 of 58 patients (93.10%) had consented to and had received this vaccine. These levels of immunization have been sustained since the fall of 1982.

There was no outbreak of influenza during the study period as documented by an increase in the incidence of pneumonia or excess mortality.

Discussion

According to the U.S. Census Bureau the number of Americans over the age of 65 will increase from 25 million in 1980 to 66 million by 2040. Many of these elderly persons will require nursing home care at some point in their lives. Studies aimed at identifying the incidence of nosocomial infections and the pathophysiology of the infection process in the elderly is lacking.

Several differences existed between the present study and other studies reported in the literature.[1,2] Upper respiratory infections were the most common nosocomial infection documented. Urinary tract infections were second, followed by pneumonia. The average annual incidence was 0.25/100 patient days in the present study *versus* 0.67/100 patient days as reported elsewhere.[2]

Differences in the incidence of a specific type of infection rest on a number of factors: 1) the level of care provided, 2) the patient population, 3) the use of indwelling Foley catheters, and 4) the type of institution (ICF vs. SCF).

In the present study asymptomatic bacteriuria was not assessed. Recent studies have provided support against treating asymptomatic bacteriuria.[10]

There is a high turnover of employees in the nursing home setting. The effects of employee turnover on the incidence of nosocomial infection was studied, but no causality was observed. What effect the rate of turnover has on the incidence of nosocomial infections requires further study. There was an attempt to study mortality as a result of nosocomial infection. The problems that arose were twofold: 1) multisystem disease clouded the cause of death and 2) the lack of autopsy data needed to verify the extent of the infection process.

Some conclusions that can be drawn from the present study are: 1) further, studies on the etiology and incidence of nosocomial infections in longterm care facilities are needed, 2) institutional differences in the types and incidence of infections exist and need to be explored, 3) the association between nosocomial infections in ECF's and their effect on mortality, 4) use of Foley catheters should be minimized, 5) infections of the upper respiratory tract appear in clusters and are viral in origin, 6) the use of empiric antibiotics needs to be kept to a minimum to suppress the emergence of resistant organisms, 7) infection control programs in long term care facilities aid in identifying and controlling potentially serious infections and should be an integral part of the health care delivered to our elderly nursing home patients.

REFERENCES

1. Garibaldi R, Brodine S, Matsumiya S: Infections among patients in nursing homes, NEJM Sept 1981, 305:731-34.
2. Farber B, Brennan C, Puntereri A, Brody J: A prospective study of nosocomial infections in a chronic care facility, JAGS July 1984, 32:499-502.
3. Cohen E, Heirholzer W, Schilling C, et al: Nosocomial infections in skilled nursing facilities. A preliminary study. Pub Health Report 1979, 94:162-165.
4. Magnussen M, Robb S: Nosocomial infection in a long term care facility. Am J Infect Control 1980, 8:12.
5. Price L, Sarubbi F, Rutala W: Infection control in twelve North Carolina extended care facilities, Infection Control 1985, 6:437-41.
6. Crossley K, Devine P, Koszor D, Leuwenson R: Infection control practices in Minnesota nursing homes, JAMA 1985, 254:2918-21.
7. Center for Disease Control. Outline for surveillance and control of nosocomial infections. Atlanta GA, 1976.
8. MMWR: Recommendation of the immunization practices advisory committee (ACIP): Influenza Vaccines 1980, 28:231.
9. MMWR: Recommendation of the immunization practices advisory committee (ACIP): Pneumococcal polysacehmide vaccine 1981, 30:410.
10. Boscia J, Kobasa W, et al: Epidemiology of bacteriuria in an elderly ambulatory population. Amer J of Med Feb 1986, 80:208-14.

Chronic Thyroxine Ingestion Leading to Thyroid Storm and Accelerated Thyroxine Turnover

WILLIAM A. PETIT, JR., M.D. AND EUGENE J. BARRETT, PH.D., M.D.

ABSTRACT—We describe the first patient with thyroid storm caused by chronic ingestion of L-thyroxine. From serial measurement of total serum L-thyroxine, the thyroxine half-life was estimated to be 48 hours or less. Thyroxine turnover in this patient was more rapid than that previously reported for milder hyperthyroidism. This may have clinical implications for turnover of other drugs in severe thyrotoxicosis.

Introduction

Thyrotoxicosis due to exogenous thyroid hormone is an uncommon but well characterized condition and often difficult to diagnose. Thyroid storm (decompensated hyperthyroidism with altered mental status and defective thermoregulation)[1] due to exogenous thyroid hormone is rare.[2-5] We report a patient with thyroid storm due to chronic L-thyroxine overdosage. In addition, we estimated the half-life (T½) of L-thyroxine and found it greatly reduced compared to that previously reported in milder forms of hyperthyroidism.[2,3,6,7]

Case Report

A 66-year-old female was seen in the Yale-New Haven Hospital emergency room complaining of pain in the shoulder and forearm precipitated by a fall several hours earlier. She was noted to be tachypneic and tachycardic and complained of increasing dyspnea and swelling of her lower legs over the preceding six weeks. To treat the edema she had medicated herself with 80-240 mg/day of her husband's furosemide. Forty years earlier hyperthyroidism had been diagnosed and successfully treated with iodide and a thiourea preparation. A second episode of hyperthyroidism 22 years prior to this admission had been treated transiently with propylthiouracil (PTU). She subsequently avoided medical care until the current admission. Approximately 1½ years ago she began taking up to six tablets daily of her sister's L-thyroxine (150 μg/tablet) in a successful effort to lose 100 pounds (45 kg).

Physical examination revealed a chronically ill appearing lethargic woman in moderate respiratory distress. Her blood pressure was 140/70 mmHg, pulse 150/minute and irregular, oral temperature 102°F (38.9°C), respirations 30 and labored. She weighed 119 pounds (54.1 kg). Her hair was thin and fragile and there was marked bitemporal muscle wasting. The thyroid gland was not palpable. There was no stare nor proptosis. Bilateral basilar rales and a grade III/VI holosytolic mitral regurgitation murmur were present. There was no hepatosplenomegaly. She had a diffuse fine tremor and marked bilateral pitting edema of her lower legs. The left humerus was tender and immobile. A radiograph of her left arm revealed a non-displaced fracture of her proximal humerus. A chest x-ray showed cardiomegaly with pulmonary edema, right pleural effusion, and the question of an alveolar infiltrate was raised. The electrocardiogram revealed atrial fibrillation with a rate of 130-160 and diffuse non-specifc ST-T wave changes. Serum electrolytes were normal. Room-air arterial blood gas showed pH 7.42, pCO_2 43 mmHg and pO_2 37 mmHg. The hematocrit was 38 and the leukocyte count 12,500 with 10% band forms. Initial total thyroxine was 20.4 μg/dl (normal 4.6-9.2 μg/dl), thyroid binding capacity was 12.5 μg/dl (normal 16.8-25.7 μg/dl), estimated free thyroxine 7.6 ng/dl (normal 1.0-2.1 ng/100 ml).[8] Triiodothyronine was 85 ng/dl 24 hrs (normal 80-200 ng/dl) after admission.

She was admitted to the intensive care unit and treated with digoxin, furosemide, aminophylline, acetaminophen, oxacillin, gentamicin, oxygen, dexamethasone 2.0 mg every six hours, PTU 200 mg every six hours, and iopanoic acid 2 g orally for one dose. Follow-up thyroid function tests and clinical course are seen in Figure 1. Dexamethasone was discontinued on the third day and PTU was stopped on the tenth hospital day. Triiodothyronine was 31 ng/dl on day five. All cultures of blood, urine, and sputum were sterile and the antibiotics did not effect her temperature curve. An echocardiogram showed moderate aortic stenosis and concentric left ventricular hypertrophy. Quinidine converted her atrial fibrillation to normal sinus rhythm and her congestive heart failure symptoms improved dramatically. She was discharged on digoxin and furosemide but no thyroid therapy. Four weeks after discharge and before her scheduled visit follow-up she again presented herself in the emergency room and died in acute cardio-pulmonary arrest secondary to pulmonary edema. A history obtained from her family indicated that she had discontinued her medications at home, developed recurrent congestive symptoms, and refused to return for therapy. Autopsy permission was refused.

Discussion

This patient had had thyrotoxicosis in the past (etiology not known) as well as probable underlying psychiatric and cardiac problems. She presented in thyroid storm presumably due to chronic intentional L-thyroxine overdosage though underlying autonomous thyroid hyperfunction cannot be excluded.

Thyroid hormone preparations are commonly prescribed medications but in spite of this there have been only a handful of reports of thyroid storm or severe thyrotoxicosis due to thyroid overdosage.[2-5] As far as we can determine this is the first case of chronic, not acute, overdose leading to thyroid storm and the first case describing thyroxine turnover in thyroid storm.

WILLIAM A. PETIT, JR., M.D., Postdoctoral Fellow; EUGENE BARRETT, PH.D., M.D., Associate Professor of Medicine; both of the Division of Endocrinology and Metabolism, Department of Internal Medicine, Yale University School of Medicine, and Yale-New Haven Hospital, New Haven, CT.

Dr. Petit is supported by NIH Fellow Training Grant AM 07058.

This paper was presented at the American College of Physician, Connecticut Chapter Regional meeting at Norwalk Hospital, Norwalk, CT on September 12, 1986.

Reprint requests: Yale University School of Medicine, Fitkin 1, 333 Cedar St., New Haven, CT 06510 (Dr. Petit).

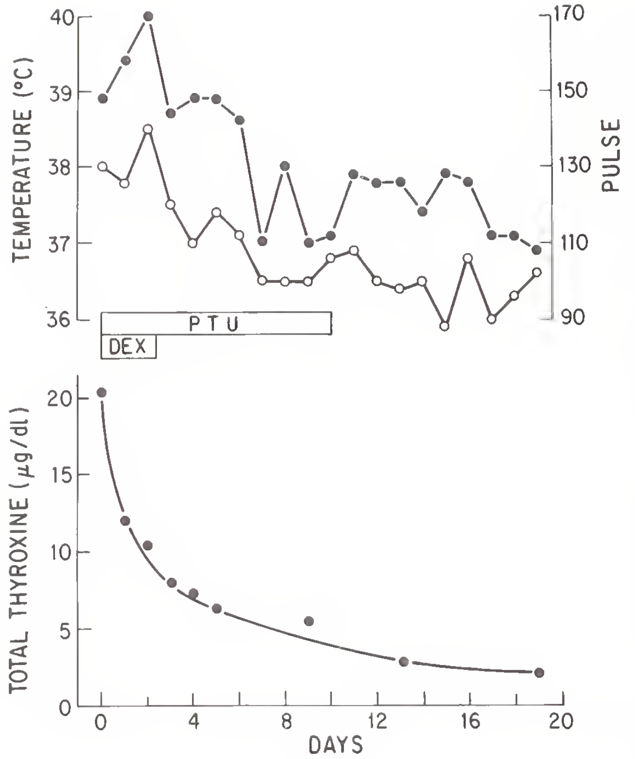


Figure 1
The time course of the change of the patients daily maximal temperature (●) and pulse (o) (upper panel) and the serum total thyroxine concentration (lower panel) throughout the hospitalization are shown, together with the duration of therapy with dexamethasone (DEX) and propylthouracil (PTU). Iopanoic acid 1 g was given as a single dose on the day of admission.

Since serial total thyroxine levels were obtained and thyroxine synthesis and secretion were blocked by PTU and by chronic suppression of her gland with thyroxine, we could estimate the T½ of thyroxine in this patient. Fractional thyroxine turnover was estimated from the regression of the logarithm of serum thyroxine concentration over time and the slope of the line was determined using a least-squares fit.[9] This patient's estimated fractional thyroxine turnover was 25% per day and T½ was two days. This is less than the average thyroxine T½ of 4.4 days for treated but still hyperthyroid patients reported by Sterling and Chodos in 1956 using intravenous I^{131}-labeled-thyroxine. The only untreated patient had a thyroxine T½ of 2.7 days. Using a similar technique other investigators found the fractional thyroxine turnover to average 21% per day in patients with Graves thyrotoxicosis treated for one week. Three patients with factitious thyrotoxicosis, including one subject who had been taking 0.9 mg L-thyroxine in excess of one year, had an average L-thyroxine turnover rate of 15.5%/day.[7] In the two prior cases of thyroid storm due to acute thyroid intoxication, the calculated thyroxine half-lives were 5.5 to seven days,[2,3] consistent with the patients' prior euthyroid states. In three prior cases of factitious thyrotoxicosis thyroxine T½ ranged from 3.9 to 7.3 days.[10] In our patient it is possible that thyroxine turnover was even faster prior to the use of PTU, dexamethasone, and iopanoic acid which inhibited the conversion of T4 to T3. Despite this the turnover rate was still markedly accelerated compared with normal individuals or patients with milder degrees of thyrotoxicosis. It is also possible that the drugs used accelerated thyroxine turnover; however, we have been unable to find any studies documenting this effect in the literature.

Thyroxine-binding globulin (TBG) is the major carrier protein for L-thyroxine and it is not normally excreted in urine. Our patient demonstrated no albuminuria during her hospitalization. We feel it is quite unlikely that she could have had a renal leak selective for TBG alone and thus we remain confident that her accelerated thyroxine turnover was real.

To our knowledge, this is the first report of chronic thyroxine overdosage leading to thyroid storm. We were further struck by the marked shortening of thyroxine T½ in this patient. It is not known if severe toxicosis from endogenous sources has similar, marked effects on the turnover of thyroxine and other medications. If so, this may have implications for our management of these patients.

REFERENCES

1. Nicoloff JT. Thyroid Storm and Myxedema Coma. Med Clin North Am 1985, 69:1005-1017.
2. Levy RP, Gilger WG. Acute thyroid poisoning report of a case. N Engl J Med 1957, 256:459-460.
3. Schottstaedt ES, Smoller M. "Thyroid Storm" produced by acute thyroid hormone poisoning. Am J Med 1966, 64:847-849.
4. Funderburk SJ, Spaulding JS. Sodium levothyroxine (Synthroid R) intoxication in a child. Pediatrics 1970, 45:298-301.
5. Goulon M, Combes A. Crise thyrotoxique médicamenteuse. Des dangers d'une préparation prétendue homépathique. Nouv Presse Méd 1977, 6:3729-3731.
6. Sterling K, Chodos RB. Radiothyroxine turnover studies in myxedema, thyrotoxicosis, and hypermetabolism without endocrine disease. J Clin Invest 1956, 35:806-813.
7. Nicoloff JT, Low JC, Dussault JH, Fisher DA. Simultaneous measurement of thyroxine and triiodothyronine peripheral turnover kinetics in man. J Clin Invest 1972, 51:473-483.
8. Seligson H, Seligson D. Measurement of thyroxine by competitive protein binding. Clin Chim Acta 1972, 38:199-205.
9. Snedecore GW, Cochran WG. Regression. In: Snedecor GW, Cochran WG (eds). Statistical Methods. 135-171. Iowa State University Press; Ames, Iowa, 1967.
10. Rose E, Sanders TP, Webb WL Jr, Hines RC. Occult factitial thryotoxicosis. Thyroxine kinetics and psychological evaluation in three cases. Ann Intern Med 1969, 71:309-315.

Finger Dislocations in Alcoholics

ARTHUR P. VERCILLO, M.D., RAYMOND C. SQUIER, M.D., G. DAVID RITLAND, M.D.,
JOHN C. RUSSELL, M.D. AND DONALD R. BECKER, M.D.

ABSTRACT—Finger dislocations are common injuries in the alcoholic patient. Misdiagnosis of acute finger dislocations in this population is also common since traditional methods of diagnosis including history, physical examination, and routine x-rays are often not adequate for making a definitive diagnosis. Two recent cases which typify the problem are presented followed by a discussion on how misdiagnosis can be prevented. The physician must maintain a high index of suspicion and obtain x-rays specific to the joint in question rather than the entire hand. In this way, long term patient disability and repetitive utilization of the medical care system can be avoided.

Introduction

Alcoholics are more apt to be involved in falls, fights, and motor vehicle accidents than non-drinkers.[1] This makes them more prone to injuries such as finger dislocation. While inebriated, they often do not feel the pain of their injuries, and by the time they are sober again, they may not remember how each injury occurred. In this population, traditional methods of diagnosis, including history, physical examination, and routine x-rays, are often not adequate for making a definitive diagnosis. Misdiagnosis can lead to subsequent disability and inappropriate utilization of medical care resources.

Two recent cases which typify the problem are presented. Though not a particularly active topic of investigation, it *is* a widespread problem, not confined to any one institution. In fact, unraveling the histories of the following two patients lead to several major hospitals.

Case Reports

Case 1. The first patient is a 39 year-old man who originally presented to an emergency room one week after striking his hand against a wall (as best he remembered). He had an infected laceration of the base of the right index finger. Routine whole hand films were obtained which, in this case, included PA and oblique, but not lateral views (Figure 1). They were read as negative, except for a healed fracture of the ring finger. The patient was subsequently discharged on oral penicillin therapy.

He presented to the same emergency room four weeks later, again with an infected laceration of the base of the right index finger. This time he claimed it had happened just one week earlier in a knife fight. No x-rays were obtained. He was given a prescription for axoxicillin and sent home, only to return four days later acutely intoxicated, with a worsening infection. Whole hand films were obtained and interpreted as demonstrating soft tissue swelling without fracture or osteomyelitis. No mention was made of any dislocation. With a presumed cellulitis, the patient was admitted to the hospital and treated with a two-week course of intravenous antibiotics. Eventually, the patient was brought to the operating room for incision and drainage of the finger, but no abscess cavity was located.

One week following discharge, he presented to another emergency room again with purulent drainage from both the laceration and the incision and drainage site. This time specific right index finger proximal interphalangeal joint films showed clear dorsal displacement of the middle phalanx relative to the proximal phalanx (Figure 2). The patient was admittd for open reduction of the dislocation (Figure 3).

Eventually, the patient regained moderate use of the digit. However, at least four emergency room visits and two admissions were required to make an accurate diagnosis and institute proper treatment.

Case 2. The second patient is a 36 year-old man who presented to an emergency room three days after injuring his right thumb in a fall. No x-rays were obtained at initial presentation, but a transverse laceration along the interphalangeal joint was sutured. Three months later he presented to another emergency room complaining of intermittent pain and inability to flex or extend the interphalangeal joint of his thumb. The laceration had healed, but x-rays showed a posterior dislocation of the distal phalanx (Figure 4). In the operating room this was explored, revealing deterioration of the articular cartilage with necessitating fusion of the right thumb interphalangeal joint (Figure 5).

Had the diagnosis been made at his original presentation and been followed by adequate early treatment, he probably would have retained greater function of this important digit.

Discussion

Recent studies by Hold and Hughes[2,3] of a combined total of 65,000 emergency department patients reveal that alcohol contributes directly to the presentation of one out of every five patients seen in the emergency room. Many of these patients are acutely intoxicated at the time of presentation. Frequently the intoxicated patient is confused, hostile, loud, and demanding. He does not fit in

---

ARTHUR P. VERCILLO, M.D., Chief Resident in Surgery, Saint Francis Hospital and Medical Center, Hartford, CT. RAYMOND C. SQUIER, M.D., Attending Emergency Physician, Saint Francis Hospital and Medical Center. G. DAVID RITLAND, M.D., Attending Orthopedic Surgeon, Saint Francis Hospital and Medical Center. JOHN C. RUSSELL, M.D. Chief, Surgical Service, Newington Veterans Administration Medical Center, Newington, CT; Associate Professor of Surgery, University of Connecticut School of Medicine, Farmington, CT. DONALD R. BECKER, M.D., Director of Surgery, Saint Francis Hospital and Medical Center; Professor of Surgery, University of Connecticut School of Medicine.

Reprint requests to: Department of Surgery, St. Francis Hospital and Medical Center, 114 Woodland St., Hartford, CT (Dr. Vercillo).

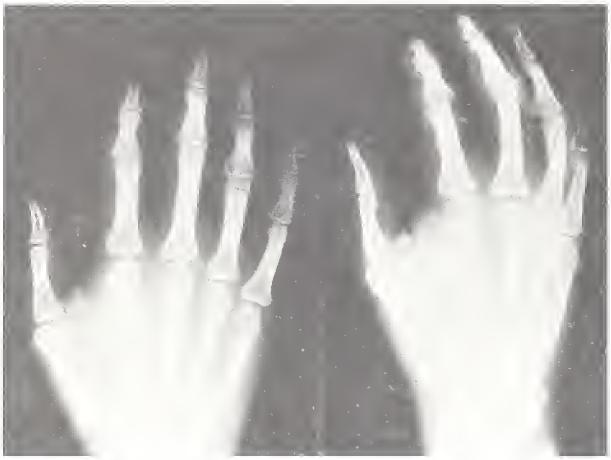


Figure 1

PA and oblique views of the right hand which fail to demonstrate any finger dislocations in patient #1.

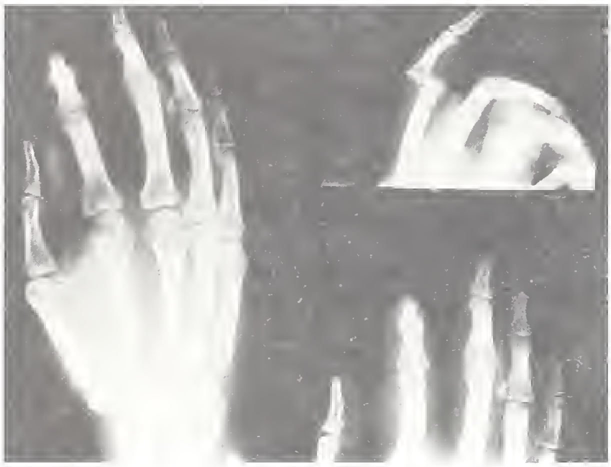


Figure 2

Specific index finger lateral view now demonstrates dorsal displacement of the middle phalanx relative to the proximal phalanx in patient #1.

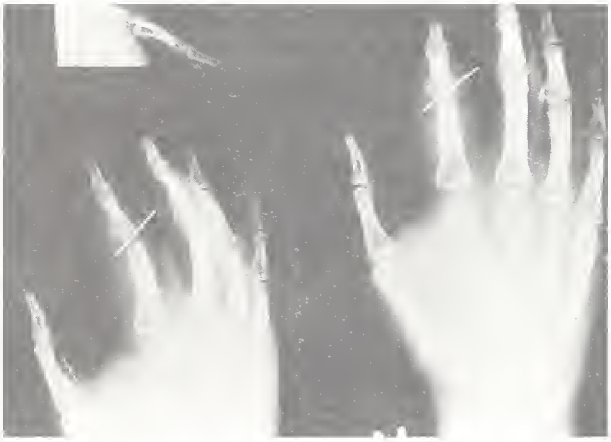


Figure 3

Post open reduction films of patient #1.

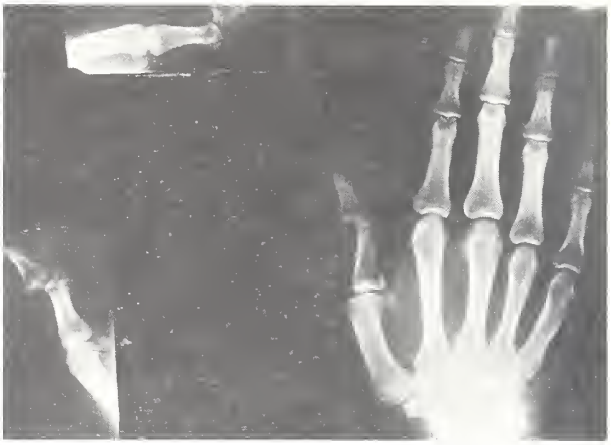


Figure 4

Three views showing posterior dislocation of the distal phalanx of the right thumb in patient #2.

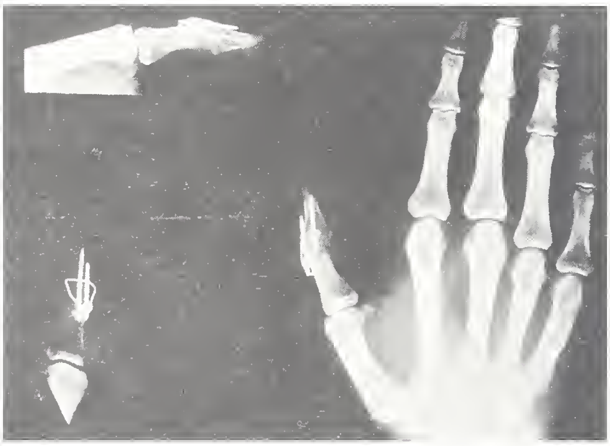


Figure 5

Post open reduction films of patient #2.

with the busy and efficient emergency room pace and may turn the department into a scene of turmoil. He may have the added disadvantage of being seen as hopeless, thus undeserving of the extra time and effort required in his case.[4] In fact, frequently the alcoholic fulfills this prophesy of hopelessness and returns to the emergency room repeatedly. One reason these often unpleasant and difficult patients return to complain about the same problem is that they often do not receive adequate initial treatment.

As with injuries elsewhere in the body, finger and hand injuries may be insignificant and require little more than rest and reassurance.[5] However, nowhere else in the appendicular skeleton is function more dependent upon structure.[6] Some seemingly insignificant finger injuries may actually be potentially disabling. Often finger dislocations are misdiagnosed as sprains. In many cases, had a prompt accurate diagnosis been made, early proper treatment such as reduction by manipulation and external fixation could have been accomplished. If the diagnosis is delayed, open reduction is required and, even then, the results are often less than satisfactory.[7] To avoid any compromise in quality of care and possible disability, the physician must have a high degree of suspicion and the ability to derive the most from available clues.

A recent study by Kristensson,[8] in which over 100 alcoholic men were followed for a four-year period, demonstrated that because of the nature of their injuries, alcoholics are twice as likely to be x-rayed in the emergency room as non-alcoholics. Despite the number of x-rays being performed, because it is known that alcoholics are prone to orthopedic injury, adequate consideration is not always given to the fact that dislocation must be sought as well as fracture.

A wide variety of finger dislocations exist in combination with soft tissue injuries and/or fractures. It is beyond the scope of this paper to address each dislocation separately. Our objective is to point out that they do occur frequently, especially in intoxicated persons. Also, although detection is not always easy, the correct diagnosis can be established in the vast majority of cases if there is a high index of suspicion and if effective x-rays are ordered.

The chances of obtaining adequate x-rays are maximized if the x-rays requested specifically fit the pertinent findings on history and physical examination.[9] This information should be passed on to the radiologist. A swollen tender finger with an overlying laceration in an inebriated patient should be labeled as such, rather than simply as a hand injury; an effort should be made to obtain specific films for specific injuries. Unless AP and true lateral views of the finger have been obtained, the physician may be lulled into a false sense of security.

It is common practice to obtain whole hand films when only a finger is injured. Films of the entire hand may perfectly depict the normal areas but inadequately demonstrate the area of suspected pathology. This is especially true of lateral views.

For finger injuries the fingers should be x-rayed. Also, AP films are better than PA films since the joint space opens further.[5,7] In questionable cases, comparison views can also be obtained.

Conclusions

Alcoholics are prone to finger joint dislocations. This type of injury can be treated successfully with minimal loss of function when diagnosed and treated early. The alcoholic, however, presents special diagnostic problems. He may give a vague or inaccurate history, and the physical examination may be difficult, unpleasant, and misleading. Misdiagnosis can still be prevented by maintaining a high index of suspicion and obtaining x-rays specific to the joint in question rather than the entire hand. In this way, repetitive emergency room visits and long-term patient disability can be avoided.

REFERENCES

1. Kinsella JF and Africano A: Emergency Care and evaluation of the alcoholic patient. Part I Conn Med 1977, 41:655-61.
2. Hold T, Stewart IC, Dixon JMJ, Elton RA, Taylor TV, Little K: Alcohol and the emergency service patient. Br Med J 1980, 281:638-40.
3. Hughes JH, Schernitzki P, Byers P and Likes K: Trauma in patients influenced by drugs and alcohol. Ann Emerg Med 1980, 9:7-11.
4. Hardin K: Treating intoxicated patients in the emergency department. JEN 1979, 5:11-14.
5. Green DP: Commonly missed injuries in the hand. AFP 1973, 7(1:)111-119.
6. Felson B. Roentgenology of Fractures and Dislocations. Grune and Stratton 1978, New York.
7. O'Brien ET. The sprained finger that isn't. AFP 1981, 23:129-37.
8. Kristensson H, Lunden A and Nilsson BE. Fracture incidence and diagnostic roentgen in alcoholics. Acta Ortho Scand 1980, 51:205-7.
9. Weeks PM. Acute bone and joint injuries of the hand and wrist. CV Mosby Company 1981, St. Louis, MO.
10. Levy R and Cale MS. Interactional approach to the difficult emergency department patient. JACEP 1977, 6:7-9.
11. Kinsella JK and Africano A. Emergency care and evaluation of the alcohol patient (part II). Conn Med 1977, 41:729-31.
12. Zimberg S. Alcoholism: prevalence in general hospital emergency room and walk-in clinic. New York State J Med 1979, September 1533-36.
13. Wood MB and Dobyns JH. Chronic complex volar dislocation of the metacarpophalageal joint. J of Hand Surg 1981, 6:73-76.
14. Phillips JM. Irreducible dislocation of a distal interphalangeal joint: case report and review of literature. Clin ortho 1981, 820:188-90.
15. Malerich MM, Eaton RG and Upton J. Complete dislocation of a little finger metacarpal phalangeal joint treated by close technique. J Trauma 1980, 20:424-5.
16. Adler GA and Light TR. Simultaneous complex dislocation of the metacarpophalangeal joints of the long and index fingers. J Bone and Joint Surg 1981, 63:1007-9.

AYR INSURANCE AGENCY

Sponsored by

The Connecticut State Medical Society

Featuring:

NEW - Non-Smoker Term Life Insurance

WITH NEW LOWER RATES

-ATTENTION-

If you currently have a Phoenix Mutual Term Life Certificate (with the former Irwin Schiff Agency) you should investigate this new offering.

Also Featuring:

Disability Income Insurance
Hospital, Surgical and Major Medical Insurance
Office Overhead Insurance

"Growing Bigger by Serving Better"

Alison Ayr
J. Lauren Ayr
David Gould
William Harrington

105 Sanford Street, Hamden, CT 06514
Telephone 288-4302

Important Advances in Clinical Medicine

Otolaryngology/Head and Neck Surgery

The Scientific Board of the California Medical Association presents the following inventory of items of progress in otolaryngology/head and neck surgery. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in otolaryngology/head and neck surgery that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Otolaryngology/Head and Neck Surgery of the California Medical Association and the summaries were prepared under its direction.

Anosmia—Evaluation and Treatment

As many as 2 million Americans have lost their sense of smell. Many of these patients have sought advice from primary care physicians and specialists, never receiving satisfying explanations. Over the past two years, the Nasal Dysfunction Clinic at the University of California San Diego Medical Center has had the opportunity to fully evaluate 63 patients. The evaluation included an age-adjusted olfactory threshold and odor identification test, rhinomanometry, nasal cytology, nasal endoscopy, computed tomographic (CT) scan and a trial of medical treatment. In all, 33% (21) of the patients had anosmia or hyposmia due to inflammatory nasal disorders, 32% (20) due to postviral olfactory epithelial destruction, 11% (7) due to exposure to toxins, 10% (6) due to trauma, 5% (3) due to congenital disorders, 5% from miscellaneous causes and 5% were psychiatric in nature.

The most interesting observations from this experience are as follows: First, the loss of smell is considered by all who suffer it a major disability. For these, food has lost its taste and, in a society that structures socialization around eating, this is a major handicap. Additionally, these patients cannot smell smoke and are not readily able to detect fires. Lastly, these persons cannot smell spoiled or rotten food and are at a higher risk for food poisoning.

CT scans were found necessary to evaluate the paranasal sinuses and were found to be superior to plain films identifying ethmoidal inflammatory disorders. A short course of high doses of prednisone often returns the sense of smell to those whose disorder has an inflammatory cause and was found to be a useful diagnostic test. Neither zinc nor antihistamines were found to be useful treatments for patients suffering from anosmia.

Recommendations are that everyone suffering from anosmia have a complete evaluation. Those with an inflammatory cause are potentially correctable; those with other causes are not correctable, and patients need to be informed of their prognosis. All patients need to be advised of the necessity for smoke detectors and, for those using natural gas, propane or other gaseous substances, the need for in-house gas detectors. All need to be advised about the risk of spoiled foods.

Finally, some rehabilitation is possible, and just as the blind have learned to read with their fingers, those without smell can learn to taste through other senses.

Terence M. Davidson, M.D.
San Diego

REFERENCES

Doty RL: A review of olfactory dysfunctions in man. Am J Otolaryngol 1979, 1:57-79.

Report of the Panel on Communicative Disorders to the National Advisory Neurological and Communicative Disorders and Stroke Council, US Dept of Health, Education and Welfare publication No (NIH) 79-1914, Public Health Service 1979, p 319.

Schiffman S, Orlandi M, Erickson RP: Changes in taste and smell with age: Biological aspect, In Ordy JM, Brizzee K (Eds): Sensory Systems and Communication in the Elderly—Vol 10, Aging. New York, Raven Press 1979, pp 247-268.

Reprinted from *The Western Journal of Medicine*, February, 1987.

Microscopically Oriented Histologic Sections for Head and Neck Mucosal Cancer

Microscopically oriented histological sections (MOHS) is a technique for frozen-section analysis of surgical margins. With the traditional pathological orientation at frozen section, as little as 1/1,000th of a surgical margin may be examined, whereas with the MOHS approach, 100% of the surgical margin is purported to be examined. This technique has been successfully applied to the resection of aggressive nonmelanoma skin cancer and has become the standard of care for such lesions. This technique has now been applied to the local control of head and neck epidermoid cancers involving mucosal surfaces of the mouth, throat and upper airway. Experience at the University of California at San Diego Medical Center of 93 patients with two-year follow-up showed that the technique was highly effective in reducing the incidence of local recurrence. While there are no good data bases with which to compare these findings, and prospective studies are difficult to coordinate, it is recognized that 50% of the failures in the control of head and neck cancer are due to failure to resect and control local disease. In the 93 patients followed for two years, only 9 cases of local recurrence were reported, 3 of which were successfully treated with subsequent procedures.

The most important information to come out of this study concerned the biological behavior of these tumors. It was observed that the tumors grew as an incontinuity growth and that while there was an easily identified central mass of neoplasm, small fingers with diameters of five to ten cells were frequently identified, extending submucosally into surrounding and adjacent tissues for distances up to 3 cm. Using MOHS as a technique of examining margins, tumor was found present 1 cm away from clinically evident disease in two thirds of the patients. Once identified, these small fingers or dendrites of tumor were easily traced and resected with additional directed excisions and microscopic examinations. The implications of this work are that by using this technique we should be able to better control local disease and therefore improve cure rates for head and neck epidermoid cancers. Additionally, there is implication that this technique may be useful in improving the local control rate for all neoplasms in which local control is a factor in morbidity and mortality.

Terence M. Davidson, M.D.
San Diego

REFERENCES

Davidson TM, Nahum AM, Haghighi P, et al: The biology of head and neck cancer—Detection and control by parallel histologic sections. Arch Otolaryngol Mar 1984, 110:193-196.

Mohs FE: Chemosurgery: Microscopically controlled surgery for skin cancer—Past, present and future. J Dermatol Surg Oncol Jan 1978, 4:41-54.

Computed Tomography in Head and Neck Surgery

During the past several years computed tomographic (CT) imaging of the head and neck has proved to be of great value to head and neck surgeons. Deep neck infections can be more accurately evaluated by delineating the presence of an abscess, its location and involvement of important surrounding structures. This helps a clinician to more accurately plan the surgical approach. CT may eliminate the need for an operation when jugular vein thrombosis, inflammatory lymphadenopathy or cellulitis is found.

When a mass lesion is present, CT may not only confirm the diagnosis but define deep tissue extent, facilitating surgical removal. It can also change the surgical approach by differentiating a cystic mass originating in the neck such as a branchial cleft cyst versus a cystic mass originating in the parotid gland. In some cases, this may be difficult to determine by clinical examination alone. It is considered to be the best single imaging examination in a patient with a lateral neck mass that is suggestive of branchial cleft cyst. If the mass is within the parotid gland, extension of the tumor into the deep lobe or into the parapharyngeal space can be found. This information may be crucial when selecting a surgical route.

Additional help in assessing benign disease may be obtained by differentiating congential lesions such as cystic hygroma from branchial cleft cysts, paramedian thyroglossal duct cysts or an external laryngocele. Other deep neck neoplasms such a parapharyngeal space adenomas of salivary gland origin, benign neural tumors or vascular paragangliomas can also be diagnosed preoperatively because of their location, density or other specific characteristics.

In the initial evaluation of malignant disease, staging and treatment of the primary tumor and metastatic disease in the neck are aided by assessing the actual extent of the disease and its involvement of important surrounding structures. Follow-up examination of tumor response to therapy, diagnosis of tumor recurrence in the treated neck and the search for an unknown primary are all significantly enhanced by CT. In our experience, CT has been of particular help in patients who have a large primary tumor and a clinically normal neck. CT imaging has, therefore, become an integral part of the preoperative evaluation in head and neck operations.

Michael H. Stevens, M.D.
H. Ric Harnsberger, M.D.
Salt Lake City

REFERENCES

Harnsberger HR, Mancuso AA, Muraki AS, et al: Branchial cleft anomalies and their mimics: Computed tomographic evaluation. Radiology 1984, 152:739-748.

Holt GR, McManus K, Newman RK, et al: Computed tomography in the diagnosis of deep-neck infections. Arch Otolaryngol Nov 1982 108:693-696.

Stevens MH, Harnsberger HR, Mancuso AA, et al: Computed tomography of cervical lymph nodes—Staging and management of head and neck cancer. Arch Otolaryngol Nov 1985, 111:735-739.

Endoscopic Sinus Operations

A radically different approach to the treatment of chronic or recurrent sinusitis has recently been introduced in the United States. The technique is not new, however, having been in use in Europe for ten years. The cornerstone of the theory behind this approach is that in chronic or recurrent sinusitis the problem is the anterior ethmoid sinuses. In patients with chronic or recurrent sinusitis, both diagnostic and therapeutic efforts are directed to this area. In severe cases, routine evaluation will show obvious sinus disease.

In patients with the appropriate history but unimpressive findings, however, further evaluation is indicated. This involves meticulous evaluation of the nasal cavity, especially the middle meatus, with sinus endoscopes, looking for purulent exudate, polyps or other abnormalities. In addition, computed tomographic scanning of the sinus is indicated. This is best done in the coronal plane, with the windows set as they are for lung parenchyma. The key abnormality is mucosal thickening in the anterior ethmoids.

Once disease in the anterior ethmoids is established, therapy is directed to that area. The key concept is a minimalist approach. In the operating room, under local or general anesthesia, an anterior ethmoidectomy is carried out under direct vision using the sinus endoscopes. The ethmoid bulla and infundibulum are opened into the middle meatus. If the remainder of the disease is reversible, nothing further is done. Beyond this point, only irreversible diseased tissue is removed.

Over the next several weeks, the operative site will heal and the sinuses will re-aerate. During the healing period, frequent cleaning of the operative site is essential to prevent crusting or scarring from impeding drainage.

My experience over the past year validates this concept. A word of caution. Because visualization is so good with the endoscopes, it is easy to go farther than planned. Remember that the eye and brain are close.

Dale H. Rice, M.D.
Los Angeles

REFERENCES

Kennedy DW: Functional endoscopic sinus surgery: Technique. Arch Otolaryngol Oct 1985, 111:643-649.

Kennedy DW, Zinreich SJ, Rosenbaum AE, et al: Functional endoscopic sinus surgery—Theory and diagnosis. Arch Otolaryngol Sep 1985, 111:576-582.

Stammberger H, Jakse R, Beaufort F: Aspergillosis of the paranasal sinuses: X-ray diagnosis, histopathology, and clincal aspects. Ann Otol Rhinol Laryngol May-Jun 1984, 93:251-256.

Stammberger H: Endoscopic surgery for mycotic and chronic recurring sinusitis. Ann Otol Rhinol Laryngol 1985, 94(suppl 119):1-11.

Wigand ME, Steiner W, Jaumann MP: Endonasal sinus surgery with endoscopical control: From medical operation to rehabilitation of the mucosa. Endoscopy 1978, 10:255-260.

Topical Gentamicin Prophylaxis with Tympanostomy

Since the modern introduction over 30 years ago of myringotomy with ventilating tube placement as a treatment for the various manifestations and complications of eustachian tube dysfunction, the use of this procedure has increased to where it is now reportedly done ½ to 3 million times per year. The most common complication is purulent otorrhea in the early postoperative period, occurring in from 10% to 34% of patients in various large series. Prompt resolution is the rule after one or more sessions of clearing the purulence and instilling otic drops in the ear of a more or less cooperative child. Oral antibiotics are often used also. The long-term consequences are minimal, but the inconvenience, anxiety and expense generated are significant.

Some authors and many practitioners have suggested and used various prophylactic techniques in attempting to minimize this troublesome problem. At least one prospective series has indicated the perioperative oral or topical administration of antibiotics may be useful, but statistical significance was not achieved. Our study is a randomized, prospective clinical trial comparing a single outcome variable: purulent otorrhea in the first 14 postoperative days in a control group (N=46) and a treatment group (N=56) that receives gentamicin ophthalmic drops in the ears for four days beginning in the operating room. Features of the history and management of the infected patients were also evaluated. Only a trend toward younger age in the patients and postoperative otorrhea were recognized.

Of the 102 patients, "early" purulent otorrhea developed in 9 and all of these were in the control group, thus yielding a *P* of greater than .001. It should be noted that the ototoxicity of topical propylene glycol and most of the antibiotics in otic drops has been established in animal models. Gentamicin is no exception. In years of experience with thousands of patients, however, neurosensory hearing loss has not been associated with the use of the preparations for this purpose.

R. Stan Baker, M.D.
Richard A. Chole, M.D., Ph.D.
Sacramento, California

REFERENCES

Lim DJ (Ed): International Symposium on Recent Advances in Otitis Media With Effusion. Philadelphia, Decker, 1983.

Meinert CL: Towards more definitive clinical trials. Controlled Clin Trials 1980, 1:249-261.

Meyerhoff WL, Morizona T, Wright CG, et al: Tympanostomy tubes and otic drops. Laryngoscope Aug 1983, 93:1022-1027.

Photoactive Therapy for Head and Neck Cancer

The peculiar property of a number of organic compounds in biologic systems to respond to incident light by releasing energy has been known for a long time. Among the most active of these compounds are the porphyrins. The reaction of the skin of porphyria victims to sunlight with erythema and blistering is an example of the tissue-destructive effects of photoactivation. In recent times, this ability of porphyrins to release energy when activated by light has been exploited to selectively destroy tumors.

When hematoporphyrin derivative (HPD) is stimulated by light frequencies of between 400 and 600 nm, there is the release of a singlet oxygen radical that is toxic to tissues. In addition, a direct effect of the energy release results in changes in the plasma membrane of cells, causing cell death. In tumors, ischemic necrosis occurs due to destructive influences on the vascular supply.

Although photoactivation can be stimulated by a high-intensity white light, it is most effectively stimulated with the beam from an argon-pumped dye laser. A patient is injected with HPD at a dose of 3.0 mg per kg body weight, and the dye is allowed time to concentrate within the tumor (about 72 hours). The lesion is then exposed to 30 to 150 joules (watts per seconds) of laser light per cm^2 of tumor surface area. Over the ensuing 24 to 96 hours, the exposed tumor undergoes coagulation necrosis to a depth of 2 cm from the exposed surface. In another application of this technique, multiple areas of carcinomatous involvement of selected tissues are both detected and ablated, such as the multifocal basal and squamous cell carcinomas of sun-damaged facial skin or the "condemned mucosa" of the oral cavity in patients with field cancerization. Tumor sites are identified by "tuning" the dye laser to a frequency in the blue-green range that will cause the tumors to fluoresce (488 to 515 nm), then resetting the frequency to the red end of the spectrum that will cause necrosis (625 to 635 nm).

The most serious drawback of the technique is the problem tumor specificity of the photoactive agents. Although tumors selectively take up HPD due to the vascular permeability of the capillaries, epithelial cells also bind the porphyrins, albeit to a much lesser but unfortunately significant degree. Therefore, a patient's skin remains sensitive to sunlight and strong fluroescent light for four to six weeks after injection. This problem can likely be circumvented—and specificity enhanced—by conjugating HPD with a tumor-specific monoclonal antibody. The antibody will selectively bind the cell membrane of the malignant cell, but not to the neighboring healthy tissues. Laboratory experimentation directed to this objective is currently being actively pursued.

At present the use of this technique has been limited to diagnosing and treating multifocal basal cell carcinomas of the face and field cancerization of the oral cavity. Some clinical trials on larger tumors have been attempted with mixed results. Further modifications in the technology and methods of this therapy have great promise.

Paul J. Donald, M.D.
Sacramento, California

REFERENCES

Dougherty TJ, Kaufman JE, Goldfarb A, et al: Photoradiation therapy for the treatment of malignant tumors. Cancer Res Aug 1978, 38:2628-2635.

Gluckman JL: The Role of Hematoporphyrin Fluorescence Detection and Photodynamic Therapy in the Management of Head and Neck Cancer, Thesis. University of Cincinatti, Spring 1986.

Hausmann W: Über die sensibilisierende wirkung tierischer farbstoffe und ihre physiologische bedeutung. Biochem Z 1908, 14:275-278.

Anterior Cricoid Split

Neonatal intensive care units have come into being in the past 20 years. With these units, the use of prolonged endotracheal intubation is commonplace. The incidence of acquired subglottic stenosis is now estimated to be near 8% in premature infants who have had an endotracheal tube.

The subglottic space is unique in that it is encased by the circumferential cartilage of the respiratory tract, the cricoid cartilage. Mechanical irritation by the endotracheal tube causes mucosal edema, ulceration and granulation tissue formation. As the subglottic space is the only area that cannot expand to accommodate these changes, the injury to this area is greater. Normally on extubation, this increased edema and granulation tissue are not enough to cause an airway problem. In some persons, however, the edema is severe enough to cause respiratory tract obstruction and requires reintubation. The factors that likely correlate with a higher incidence of acquired subglottic stenosis are duration of intubation, frequency of intubations, preexisting size of the subglottic space, concurrent infection, use of a ventilator, age and orotracheal instead of nasotracheal intubation.

Before 1980 the treatment of acquired subglottic stenosis was tracheotomy. In 1980 Cotton and Seid published their description of a new surgical procedure called the "anterior cricoid split" as an alternative to tracheotomy in selected children. In their series of 12 patients, 9 had successful extubation. Subsequent studies have shown similar results with some modification of the technique.

The procedure is very similar to a tracheotomy in terms of exposure. At this point, a vertical incision is made through the anterior wall of the cricoid cartilage and the first and second rings of the trachea and the underlying mucosa. With the endotracheal tube still in place, the cricoid cartilage normally spreads apart 1 to 2 mm, exposing the endotracheal tube. The incision is then closed over a small drain and the tube is left in place for 7 to 14 days. After this time, the child is returned to the operating room and the tube is removed.

To date, the anterior cricoid split is only recommended for anterior subglottic stenosis that is mostly of a soft (edema and granulation tissue) type. In most studies, a success rate of about 75% is obtained, although some children need to have a modified procedure done a second time. The report by Grundfast and co-workers suggests that the anterior cricoid split should only be done by someone experienced in pediatric airway problems with the help of an experienced pediatric or neonatal intensive care unit staff. Although the anterior cricoid split does not eliminate the need for tracheotomies, it is a valuable procedure that can avoid a tracheotomy in selected patients.

Craig W. Senders, M.D.
Sacramento, California

REFERENCES

Cotton RT, Seid AB: Management of the extubation problem in the premature child—Anterior criciod split as an alternative to thracheotomy. Ann Otol Rhinol Laryngol 1980, 89:508-511.

Fan LL, Flynn JW, Pathak DR: Risk factors predicting laryngeal injury in intubated neonates. Crit Care Med Jun 1983, 11:431-433.

Grundfast KM, Coffman AC, Milmoe G: Anterior cricoid split: A 'simple' surgical procedure and a potentially complicated care problem. Ann Otol Rhinol Laryngol 1985, 94:445-449.

Papsidero MH, Pashley NRT: Acquired stenosis of the upper airway in neonates an increasing problem. Ann Otol Rhinol Laryngol 1980, 89:512-514.

Pashley NRT: Anterior cricoidotomy for congenital and acquired subglottic stenosis in infants and children. J Otolaryngol 1984, 13:187-190.

ADVISORY PANEL TO THE SECTION ON OTOLARYNGOLOGY/HEAD AND NECK SURGERY

Paul J. Donald, M.D.
Advisory Panel Chair
Section Editor
CMA Scientific Board Representative
University of California, Davis

Mansfield F.W. Smith, M.D.
San Jose

Roy E. Mathews, M.D.
Sacramento

John B. Shinn, M.D.
Loma Linda University

George Petti, M.D.
Loma Linda University

Willard E. Fee, Jr., M.D.
Stanford University

Richard A. Chole, M.D.
University of California, Davis

Victor Passy, M.D.
University of California, Irvine

David Hanson, M.D.
University of California, Los Angeles

Jeffrey P. Harris, M.D.
University of California, San Diego

Roger Crumley, M.D.
University of California, San Francisco

Dale H. Rice, M.D.
University of Southern California

Marvin C. Beil, M.D.
Fresno

John Metheny, M.D.
Oakland

George B. Stoneman, M.D.
Los Angeles

Ernest E. Johnson, M.D.
Sacramento

James. A. Grant, M.D.
San Diego

Bruce May, M.D.
Santa Barbara

Bohdan A. Nichka, M.D.
Fontana

Dx: recurrent herpes labialis

"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough.**" DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits.**" MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

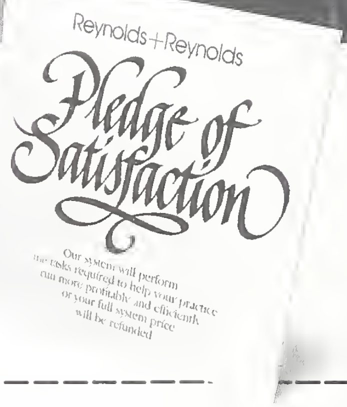
"(In clinical trials) . . . **response** was **dramatic. HERPECIN-L** . . proven **far superior.**" DDS, PA

"All patients claimed **shorter duration . . .** at **prodromal symptoms** . . . HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

YOU DON'T OFFER A WRITTEN GUARANTEE UNLESS YOU HAVE THE BEST COMPUTER SYSTEM.


Reynolds+Reynolds
Pledge of Satisfaction
Our system will perform the tasks required to help your practice run more profitably and efficiently or your full system price will be refunded

Introducing the Reynolds and Reynolds Pledge of Satisfaction.

Before we decided to offer your practice a written guarantee, we made sure we had the best medical practice management system on the market.

Only Reynolds + Reynolds, a Fortune 500 company with over 20 years of computer experience as a single source supplier, offers you:

- State-of-the-art hardware from IBM, NCR, and Texas Instruments.
- The most comprehensive Unix-based medical practice management software in the industry.
- MPMS-PLUS software features:
  - appointment scheduling
  - patient billing
  - accounts receivable
  - insurance claims
  - management reports.
- The industry's most responsive after-sale hardware and software service and support.
- Competitive lease plan rates.
- A full line of computer forms.
- A unique written pledge of satisfaction assuring you that our system will perform the tasks required to help your practice run more profitably and efficiently or your full system price will be refunded.

Whether you're a new buyer or a dissatisfied system user, Reynolds + Reynolds' single source concept is right for you. Interested? To know more about our MPMS-Plus System and our Pledge of Satisfaction, fill out the attached coupon or call us toll-free at 1-800-632-4278 (in Ohio call 1-800-535-7128.)

Reynolds+Reynolds®
Committed To Your Future

P.O. Box 1005
Dayton, OH 45401

Yes, I'm interested! I want to know more about the Reynolds + Reynolds® MPMS-PLUS system. To make our first discussion more efficient, I've filled in the information requested below.

I'm considering automating my practice:

☐ Right away. ☐ In six months. ☐ In a year or so.

☐ I'd like to know more about your unique Pledge of Satisfaction.

Name: ____________________

Practice Name: ____________________

Address: ____________________

City: ____________ State: ________ Zip: ______

Phone: ____________________

# of Physicians: ____ Specialty: ____________

MORBIDITY AND MORTALITY CONFERENCES:
UNIVERSITY OF CONNECTICUT HEALTH CENTER

A Case of AIDS: A Clinico-Immuno-Pathologic Correlation

MICHAEL CAPLAN, B.S., M.S. GANDELMAN, Ph.D. AND
HENRY SCHNEIDERMAN, M.D.

ABSTRACT—The clinical and pathologic findings in a case of acquired immunodeficiency syndrome (AIDS) are presented. Particular attention is paid to mechanisms of immune dysfunction in this disease. The resulting manifestations, especially the clinical and morphologic patterns of organ damage, are discussed with emphasis on opportunistic infections.

Series Editor's note: This remarkable conference was prepared and delivered by two Medical Students who participated in the first autopsy of an AIDS patient at this hospital. They searched the literature, brought prior knowledge to bear, and utilized preceptorial advice. Editing was completed jointly by all authors.

Michael Caplan, B.S.: A 35-year-old man developed *Pneumocystis carinii* pneumonia in July 1985. Acquired immunodeficiency syndrome (AIDS) was diagnosed. After resolution of pneumonia, he underwent antiviral treatment on protocol with suramin, an inhibitor of viral RNA-directed DNA polymerase. The patient experienced symptoms suggesting adrenal insufficiency: hypotension, hyponatremia, salt wasting, water loss, and hyperkalemia, all ascribed to suramin therapy. Mucosal candidiasis and cryptosporidiosis occurred repeatedly. Over the next year he had multiple hospitalizations for chronic abdominal pain, voluminous secretory diarrhea, and dehydration; the last reflected salt wasting and water loss from both hypoadrenalism and enteric cryptosporidiosis. The patient was homosexual and had a history of multiple sexually transmitted diseases, including perirectal herpes simplex virus type II, *Giardia lamblia* enteritis, and gonorrhea. There were no other risk factors for AIDS. Medications included dexamethasone and fludrocortisone acetate for adrenocortical replacement; sodium and potassium chloride repletion; paregoric; and clotrimazole for oral candidiasis. Despite 4 L a day of diarrheal fluid loss, further hospitalization was avoided with a combination of medications, copious oral electrolyte repletion with Gatorade, and close clinical surveillance.

One year after being diagnosed he presented to the emergency room with hematochezia, increasing abdominal pain, fatigue, dehydration, and weight loss; there he passed 500 ml of bright red blood per rectum. On examination, he appeared cachectic, dehydrated, and chronically ill. He was in moderate distress secondary to abdominal pain. He was afebrile. There was orthostatic tachycardia without orthostatic hypotension. There was no lymphadenopathy or mucosal candidiasis. The bowel sounds were hypoactive, and he displayed marked abdominal tenderness, mild guarding with equivocal rebound tenderness, and a liver edge 3 cm below the costal margin. There were external and internal hemorrhoids, a raw perianal area, and blood and mucus in the rectum. Neurologic examination was normal. Laboratory abnormalities included a hematocrit of 28.6%, total white blood cell count of 12,500/cu mm with 28% band forms, absolute lymphopenia at 375 lymphocytes/cu mm, thrombocytopenia, azotemia, severe hypoalbuminemia, and borderline hyponatremia and hyperkalemia. No fecal leukocytes were seen.

The bloody diarrhea was ascribed to infection and hemorrhoids.

On admission to hospital, hydrocortisone in stress dosage was added. Red cells were transfused. No fecal ova or parasites were seen on smear, but stool specimens contained *Cryptosporidium* species. Metronidazole and gentamicin were administered empirically. Five days following admission, stool cultures revealed herpes simplex virus type II; intravenous acyclovir replaced the other antimicrobials. Central hyperalimentation was begun. Oral candidiasis recurred, and was treated.

A week after admission, his temperature rose to 39°C (102.2°F) and was accompanied by continuing diarrhea, increasing ascites, and peritoneal signs. Dementia and

---

MICHAEL CAPLAN, B.S., and M.S. GANDELMAN, Ph.D., Senior Medical Students; HENRY SCHNEIDERMAN, M.D., (Series Editor), Assistant Professor of Medicine and Pathology; all of the University of Connecticut School of Medicine, Farmington, CT.

Grant Support: Dr. Schneiderman is a Teaching and Research Scholar of the American College of Physicians.

Reprint requests to: Room CG-058, University of Connecticut Health Center, Farmington, CT 06032 (Dr. Schneiderman).

stupor appeared; more diagnostic studies were initiated, and soon after, the development of tachypnea and radiographic infiltrates led to empiric trimethoprim-sulfamethoxazole treatment and oxygen supplementation for presumed recurrent *Pneumocystis carinii* pneumonia. The finding of *Staphylococcus aureus* in the sputum led to vancomycin treatment. When hyperalimentation was discontinued, dependent edema developed. New sputum cultures revealed *E.coli*. Cytomegalovirus (CMV) was found in the urine. Brief defervescence and slight improvement were followed by a deteriorating clinical course and death.

At autopsy, there were no external or internal signs of Kaposi's sarcoma or malignant lymphoma.

The proximal gastrointestinal tract was normal, but the entire distal tract was distended with hemorrhagic contents (Figure 1). The distal ileum showed focal mucosal irregularity. There were multiple ulcers averaging 2.5 cm in diameter, and multiple shallow fissures up to 10 cm long. The distal half of the ileum was markedly distended. The colonic mucosa revealed prominent ulcers and erosions, but no perforation. Overwhelming intestinal CMV involvement was found on microscopy; sparse mycobacteria, cryptosporidia, and a few Gram-negative bacilli were also present.

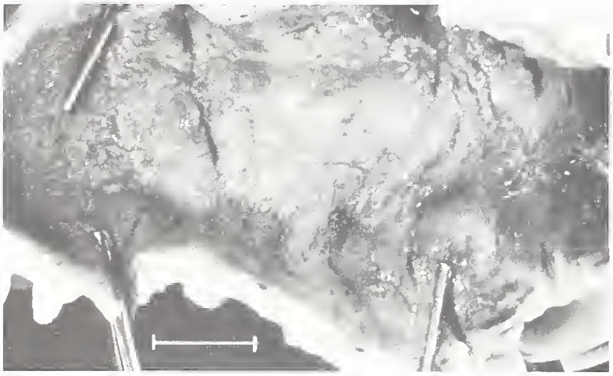


Figure 1

Opened intestine, after removal of blood-feces cast, shows hemorrhagic mucosa, dilatation, and a prominent ulcer secondary to cytomegalovirus (CMV). Bar indicates 2 cm.

The lungs contained multiple firm pink-white nodules, which proved *not* to be granulomatous. Microscopy (Figure 2 and inset) showed extensive, severe CMV pulmonary infiltration, but no other bronchopulmonary infection.

The enlarged spleen was unremarkable histologically, whereas the liver contained scant mycobacteria without inflammation. The pancreas showed CMV inclusions.

Both adrenals were paper-thin (Figure 3). Each weighed one-third of normal, and manifested severe atrophy, necrosis, and CMV adrenalitis.

The cervical and periaortic lymph nodes were enlarged. The lymph nodes showed a loss of general histoarchitecture manifested by the absence of germinal centers and primary follicles. Lymphocyte depletion is a predominant manifestation of AIDS, and is reflected in a decreased T helper: T suppressor ratio, in lymphopenia, in anergy, and in replacement of lymph nodes by a plasma cell infiltrate. In spite of lymphocyte depletion, lymph nodes may be enlarged in AIDS for two reasons: plasma cell infiltration and proliferation of sinusoidal endothelial cells, both of which serve to replace normal lymphoid elements. Foamy macrophages are also prominent, as in this case (Figure 4). Microscopy showed rampant mycobacteriosis (Figure 4, inset) without granulomatous reaction.

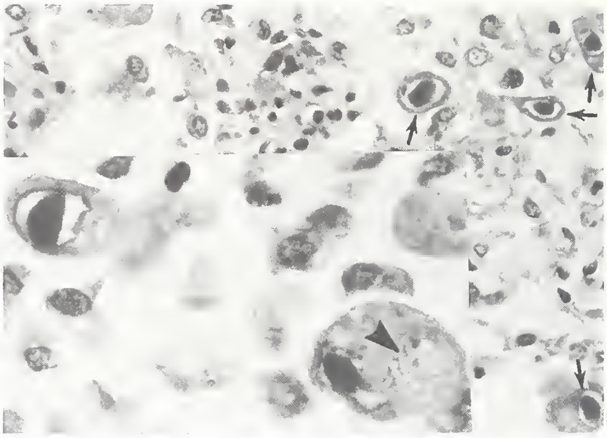


Figure 2

Survey photomicrograph of lung shows large cells (arrows) lying free in alveoli (hematoxylin and eosin [H & E], original magnification 100X). *Inset* reveals salient cytopathic features of CMV: intranuclear inclusions, surrounded by clear halos, within large cells, and occasional intracytoplasmic inclusion (arrowhead) (H & E, original magnification 1000X).

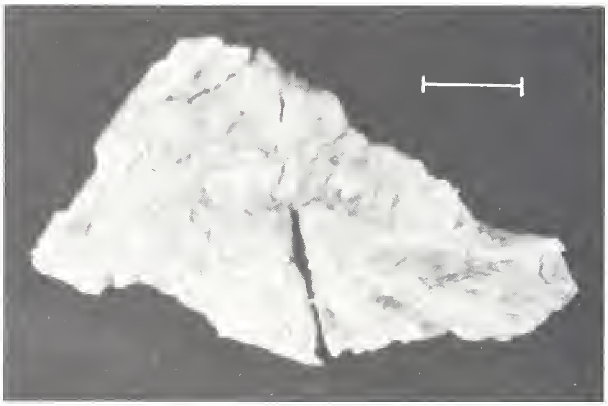


Figure 3

Shrunken adrenal gland reflects combined atrophic influences of CMV, suramin therapy, and corticosteroid treatment. Bar indicates 1 cm.

The brain revealed evidence of HIV (human immunodeficiency virus; previously called HTLV-III) infection. Additional autopsy findings included anasarca and thyroid hemorrages with purulent inflammation but no demonstrable microbes.

Autopsy lung and blood cultures revealed *Citrobacter freundii*, *E.coli*, *Candida albicans*, *Corynebacterium* and *Clostridium* species. There was no histological evidence

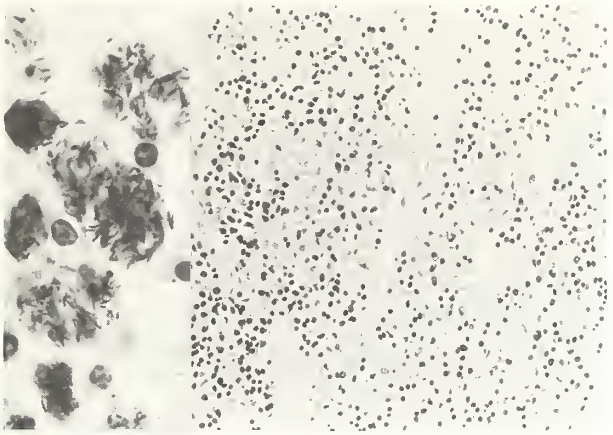


Figure 4

Lymph node shows lymphoid atrophy and a "washed-out" look produced by foamy macrophages (H & E, original magnification 200X). *Inset* reveals innumerable dark-staining small mycobacteria both within and outside of macrophages (acid-fast stain, original magnification 1000X).

of candidiasis, cryptococcosis, toxoplasmosis, or pneumocystosis.

The proximate cause of death was AIDS, with the immediate cause of death being the sum of opportunistic infections listed above, which in turn led to the intestinal hemorrhage that was the precipitating mechanism of death. Despite vigorous diagnosis and treatment, opportunistic pathogens prevailed because of the severely immunoincompetent state imposed by AIDS. The gastrointestinal tract was the organ system most severely affected both clinically and at autopsy.

Mitchell Gandelman, Ph.D.: Knowledge of the normally functioning immune system, and of the abnormalities in immunoregulation produced by the HIV, is essential for understanding AIDS, since the secondary infections associated with HIV are directly related to defects in the immune system. Furthermore, these secondary infections dominate the clinical picture and the course of treatment for the AIDS patient.

A greater understanding of the pathophysiology of AIDS can be obtained by examining the abnormalities produced in the immune system of AIDS patients. The immunological defects are vast, involving cell-mediated immunity, humoral immunity, and intercellular communications governing host defense. As a result of these abnormalities, the host becomes susceptible to many types of infections.[1,2] Agents infecting AIDS patients can be subdivided into reactivation infections and opportunistic infections.[3] In reactivation, a prior infection, previously controlled by the immune system, becomes active again: with the destruction of normal immunological function, the infectious agent is no longer kept in check, so that the agent proliferates, thus causing clinical infection. The reactivators include *Pneumocystis carinii, Toxoplasma gondii, Myocobacterium tuberculosis*, CMV, and herpes simplex virus. Those in the second group of infectious agents, opportunistic organisms, establish infection because of the decreased ability of the immune system to provide adequate defense. This group includes *Candida* species, cryptosporidiosis, *Cryptococcus neoformans, Mycobacterium avium-intracellulare*, and *Salmonella* species. The patient in this report had many of the above-mentioned infections. In addition to infectious agents, it may be possible to regard the two most common AIDS-related malignancies – Kaposi's sarcoma, and malignant lymphomas – as opportunistic malignancies that flourish under impaired immune surveillance.

The agent responsible for AIDS, HIV, has been classified as a retrovirus.[4] It is believed that the virus can infect only those cells with CD4 surface antigens, namely T-lymphocytes, B-lymphocytes, and monocytes.[5] Additionally, glial cells are believed to have CD4 surface antigens; consequently, the infectious encephalopathy produced by HIV follows the same pattern. Preliminary suggestions that anorectal epithelial cells contain CD4 surface antigens would account for some aspects of transmission.

A review of normal immune function sheds light on how the AIDS virus produces immunological abnormalities which allow for secondary infections. The host defense system can be divided into two categories: nonspecific defensive, and specific immune mechanisms.[6] The nonspecific defensive system confers protection against most types of foreign invaders, and does not involve the specificity produced by molecular interactions associated with cellular receptors and antibodies. Contained within the nonspecific defense system are: 1) physical barriers such as skin and mucosa; 2) cellular agents which include granulocytes, macrophages, and monocytes; 3) humoral components, i.e., reticuloendothelial (RE) cells, lysosomes, interferon (IF), and complement. The specific immune system contains two branches: cell-mediated immunity and humoral immunity. (The latter is distinct from humoral components of nonspecific defense). Cell-mediated immunity consists of the coordinated and specific actions of T-lymphocytes, macrophages, and lymphokines, whereas humoral immunity revolves around the production and action of immunoglobulins. The two systems are interdependent, and coordinated interaction between them is essential for effective immunological function. Table 1 illustrates a number of steps detailed below.

The production of immunoglobulins involves the concerted action of components from the cell-mediated immune system, as well as from the humoral immune system.[2,7,8] Initially, an antigen presenting cell (APC), most likely a macrophage, recognizes a foreign antigen, probably by means of a specific interaction. Next the APC presents the antigen to one of the T-helper cells (a special subset of the T-lymphocytes), and in addition the APC produces interleukin 1 (IL-1) which assists in the activation of T-helper cells. The activated T-helper cell communicates with the B-cell in a manner which is poorly understood. This sequence may involve direct cellular interaction mediated by the antigen or indirect contact via a soluble factor released by the T-helper cell. Furthermore, the T-helper cell stimulates the B-cell to proliferate

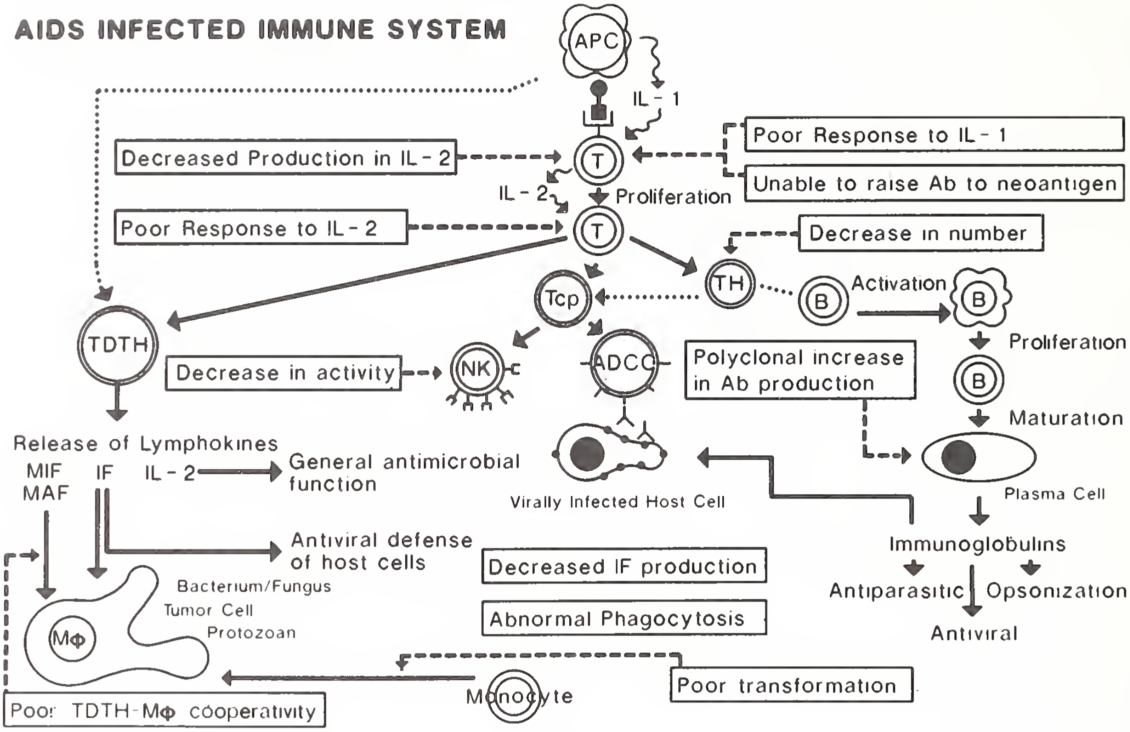


Table I

Diagrammatic representation of the normal specific immune system. AIDS-related abnormalities are contained within boxes.

Abbreviations
ADCC: antibody-dependent cellular cytotoxicity
APC: antigen-presenting cell
B: B-lymphocyte
IF: interferon
IL-1: interleukin-1
IL-2: interleukin-2
LIF: lymphocyte inhibitory factor
Mϕ: macrophage
MAF: macrophage activating factor
MIF: migration inhibition factor
NK: natural killer cell
T: T-lymphocyte
TcP: T-lymphocyte cytotoxic precursor
TDTH: T-lymphocyte delayed-type hypersensitivity
TH: T-lymphocyte helper cell

IL-2 is a T-cell lymphocyte stimulator; hence its two-fold appearance in the table.

and mature, and ultimately to produce a mature group of plasma cells. This series of steps is accomplished by three types of T-cell factors, namely antigen-specific factors, B-cell growth factor, and B-cell maturation factor. Finally, the mature plasma cells produce antibodies specific for the foreign antigens of the infecting organisms.

Immunoglobulins have a crucial function in host defense mechanisms.[6-8] Opsonization, the binding of antibodies to foreign proteins or organisms, increases the efficiency with which the macrophages and RE cells eliminate these invaders from the body. Additionally, opsonization helps counteract the antiphagocytic properties possessed by some bacteria. Finally, complement fixation via the classical pathway requires antibody binding to such microbes as protozoans and bacteria. Once initiated, the complement system is involved in vital defense functions including neutrophil activation and chemotaxis, opsonization, lysis of foreign cells, and lysis of bacteria. In a similar manner, antibodies binding to an active virus will alter and in many cases destroy the infectivity of the virus, by inhibiting viral attachment to, and penetration into, the host cell. Protection of mucosal surfaces can be enhanced by immunoglobulin E antibodies which trigger an acute inflammatory reaction upon contact with foreign antigens, especially with parasites. In conclusion, antibodies provide many anti-infective functions, including guiding cytotoxic T-cells to their targets. This last is discussed further below.

The cell-mediated immune response appears to be more complicated than is immunoglobulin production by B-lymphocytes. The cell-mediated immune response again starts with an APC interacting with a T-lymphocyte, most likely through some specific antigen-receptor interaction which is also modulated by T-helper and T-suppressor cells. In a manner analogous to that described above, IL-1 is produced by the APC; however, an additional step is required in this immune response, the release of interleukin-2 (IL-2) by the T-lymphocyte. Both of these factors are responsible for the activation and proliferation of the cellular components composing the cell-mediated response: T-helper cells, T-suppressor cells, T-delayed type hypersensitivity (TDTH) cells, and T-cytotoxic precursor cells.[7,8]

The TDTH cells are believed to interact with APCs and other T-lymphocytes, and then to release an array of lymphokines: migration inhibition factor (MIF), macrophage activating factor (MAF), lymphocyte inhibitory factor, chemotactic factor, IF, and others.[7,8] Without MIF and MAF, even though macrophages can phagocytose infectious organisms, these microbes may survive and reproduce intracellularly, only to cause infection later. IF, a potent antiviral, disrupts the viral intracellular life cycle and the ability of a virus to infect adjacent host cells.

The final component of the cell mediated immune system consists of cytotoxic T-cells: antibody-dependent cellular cytotoxicity (ADCC) and natural killer (NK) cells.[7,8] Both of these T-lymphocyte subpopulations destroy host cells that have been virally infected by recognizing viral antigens on their surface. If the virally infected host cell is destroyed prior to the completion of the viral life cycle, then no viable viruses are released. Consequently, the reproduction of a virus is inhibited. The difference between the two types of cytotoxic T-cells involves the method of recognition of the virally infected host cell. NK cells recognize infected cells by means of specific cellular receptors, whereas ADCC cells are guided by antibody bound to the infected cells. These cytotoxic T-lymphocytes also destroy phagocytic cells intracellularly infected with microbes such as mycobacteria and *Pseudomonas* species.

The effects of HIV on the immune system are numerous and devastating. Most AIDS patients are lymphopenic, with a much greater decrease in CD4 (inducer/helper) cells than in CD8 (cytotoxic/suppressor) cells; the latter, which do not become infected with the HIV, tend to remain normal in number until late in the disease. Consequently, a depression in the CD4/CD8 ratio is observed. HIV not only destroys many inducer/helper T-lymphocytes, but also causes dysfunction of the remaining CD4 cells. Some of the qualitative abnormalities within the T-lymphocytes involve disruptions in cellular communication via the principal humoral mediators or receptor mechanisms. Little agreement has been obtained from studies in this area. However, an examination of the controversy may be illuminating. The amount of IL-1 produced by macrophages in AIDS is disputed,[9,10] with some investigators observing increased amounts. A recent study demonstrated diminished response of T-lymphocytes to IL-1 in 4 of 7 patients with symptomatic HIV infection.[9] The production of IL-2 by T-cells, and the response to it, are also disputed.[9,11-13] Abnormalities in the production of alpha-IF and gamma-IF have also been presented,[14-16] although one group has demonstrated normal macrophage response to exogenous gamma-IF.[15] Rook *et al.*[17] reported that NK cell activity is markedly depressed in AIDS along with CMV-specific cytotoxic lymphocyte response. The addition of IL-2 dramatically improved the cytotoxic lymphocyte activity, whereas beta-IF had little effect on the NK cells from AIDS patients. This disparity is puzzling, since normal NK cells will increase cytotoxic lymphocyte response when exposed to either of these two lymphokines.

Intrinsic abnormalities of immunoregulation within B-cells are thought to exist in AIDS, although B-cells are present in normal numbers. AIDS patients tend to have a polyclonal hypergammaglobulinemia;[18] however, they are unable to produce immunoglobulins or to proliferate when stimulated by neoantigens, including T-cell-independent B-cell mitogens. In addition, qualitative abnormalities are observed in T-cell-mediated B-cell response. The polyclonal activation of B-cells resembles the situation in which the B-cell has been activated or transformed virally.[18] Both healthy homosexual men and AIDS patients reveal significantly increased circulating immune complexes.[19] This finding may merely reflect the increased prevalence of sexually transmitted infections in the homosexual male population.[19]

Lastly, monocyte number and function are disrupted by the HIV; qualitative defects appear to predominate. A defect resulting in abnormal phagocytosis has been identified, along with problems in adherence, and in monocyte transformation to macrophages. The transformational abnormality is most likely related to the failure of TDTH-macrophage cooperation. The morphologic correlate of the last is the failure of AIDS patients to form granulomas in response to mycobacterial and fungal infections.[2]

Unfortunately, present information concerning the defects in the immune system caused by HIV is far from complete, and the conclusions of current research are plagued by controversy. One hopes that further research will elucidate a more precise mechanism for the immunoincompetence in AIDS, and thus new and improved methods of treatment can be founded on a rational base.

Michael Caplan: Only a nascent literature exists concerning the autopsy pathology of AIDS,[21] and only the homosexual risk group has been adquately studied, posing a limitation to generalization of findings. Despite these problems, we can make some conclusions about the pathology of AIDS and its complications.

The clinical scenario in AIDS patients is quite consistent. The mean age at which AIDS presents clinically is 35-40 years, although cases range from infancy to old age. The typical clinical presentation features some or all of the following signs and symptoms: fever, weight loss, diarrhea, anorexia, dyspnea, mucosal candidiasis, fatigue, dysphagia, altered mental status, headache and coagulopathy. There is commonly a prior history of multiple sexually transmitted diseases, including anorectal and genital herpes simplex virus infection, gonorrhea, syphilis, giardiasis, and amebiasis; additionally, there may be a history of hepatitis-B and mucosal candidiasis.

Multiple opportunistic infections, with multiorgan involvement, are a constant feature at autopsy in AIDS. In fact, it is the culmination of disseminated disease inflicted by these organisms, expressed clinically as respiratory failure, neurologic dysfunction, diarrhea, or coagulopathy, which precipitates death in most AIDS patients. This finding, in contrast to earlier reports that Kaposi's sarcoma figured significantly as a cause of death in AIDS patients, underscores the importance of opportunistic infections in the morbidity and mortality of AIDS.[22]

In all studies, CMV is the most common, most underdiagnosed, and most underidentified infection, it is also usually coinfectious with one or more organism(s). The predilection of CMV for certain organs (tropism) differs in AIDS patients from that in other immunocompromised patients with CMV infection, e.g., renal transplant patients. In AIDS, CMV consistently involves the lungs, the adrenals, and the gastrointestinal tract. The mechanism underlying the tropism remains unknown.

Over half of all infections suffered by AIDS patients, in all studies, were first diagnosed at autopsy. In addition to the well-recognized opportunistic pathogens, nonopportunistic bacteria accounted for over 50% of infections remaining undiagnosed until autopsy.[21] These conventional bacterial infections reflected the derangements in T-cell and B-cell function described above. In addition, internal malignancies (commonly lymphoma rather than Kaposi's sarcoma) usually remained clinically unsuspected and were discovered only at autopsy. Thus, the clinical difficulty identified by autopsy findings is mainly one of underdiagnosis rather than misdiagnosis, and its solution carries important clinical implications.[23,24]

Autopsy studies confirm the difficulty of treating even well-diagnosed infectious complications of AIDS. For example, disseminated CMV infection is not curable with current therapy. Experimental drugs used to date have proven ineffective and toxic. Even *Pneumocystis carinii* pneumonia, treated appropriately with trimethoprim-sulfamethoxazole, persisted at autopsy in the majority of cases in all studies. In addition, the inefficacy of antimycobacterial/antituberculous drugs in this populace is established. Thus, even infections which are treatable and curable in other patients may persist or progress under treatment in AIDS patients.[21]

Autopsies illuminate the pitfalls in clinical diagnosis of suspected infections in AIDS patients. The profound immunoincompetence of AIDS patients precludes them from mounting characteristic and diagnostic host responses to infection. CMV infection may occur without inflammation or necrosis. The inflammatory response in the lungs of the patient reviewed herein was scant, and the diagnosis depended on finding cytopathic viral inclusions. In addition, as seen in the present case, mycobacterial infection is rarely accompanied by granulomas. Because the variability or absence of host response can lower both the clinician's and the pathologist's indices of suspicion for infection, it is essential that special stains for fungi, acid-fast organisms, bacteria, and protozoa be routinely employed in AIDS cases,[24] regardless of histopathology on routine staining. This caveat applies equally to biopsies and smears studied during life, and to autopsy specimens.

The detection of one infecting species in an organ cannot end the search for etiology, since AIDS patients frequently harbor more than one damaging agent at a given site. The accuracy of tissue diagnosis in biopsies from AIDS patients is variable and unsatisfactory. Problems relating to biopsy site and sample size are exacerbated when lesions are isolated and focal, because it is then considerably more difficult to obtain diagnostic tissue. Therefore, when the patient's condition warrants, clinicians must be active in diagnostic intervention and must maintain a high degree of clinical suspicion of infection, which may result in empirical or presumptive treatment of infections. Employment of this intervention-oriented approach has reduced the percentage of undiagnosed infections discovered at autopsy to 25% of total infections at some centers;[22] this is an important step in avoiding preventable deaths.

Autopsy studies of AIDS patients reconfirm the value of autopsy as a diagnostic and ultimately therapeutic tool. The autopsy is a means by which to acquire clinically pertinent information that simply cannot be obtained in any other way. Despite the impressive number of biopsies performed in AIDS patients, many previously unrecognized diseases are not discovered until autopsy. It is the results of autopsies, revealing missed diagnoses, that have led to a heightening of clinical awareness and a consequential improvement in the accuracy of clinical diagnoses.[22] Since the autopsy pathology of AIDS manifests the complications of a primary deficit of the immune system, the particular pattern of disease and organ involvement in AIDS patients becomes crucial to examine. By understanding why the clinicopathologic presentation in AIDS differs from that in other immunoincompetent states, it will be possible to explore the immunologic basis further. Autopsy remains a potent method of investigation.

The autopsy pathology of AIDS serves to generate controversies and hypotheses regarding pathogenesis. The universal occurrence of testicular atrophy, for example, cannot be entirely explained by chronic illness, as many patients run a clinical course as short as two months. A more central question is the process of lymphoid depletion. In the thymus in AIDS, there is a loss of functional Hassall's corpuscles. Atrophic Hassall's corpuscles in other immunodeficient states such as Down's syndrome suggest that loss of Hassall's corpuscles may adversely affect T-cell function.[21] The degree of loss of normal lymphoid tissue in lymph nodes parallels the severe impairment of immunocompetence in AIDS patients.[22] While these findings may seem at first contradictory to the markedly hyperplastic appearance of lymph nodes in the majority of biopsies performed on AIDS patients, the small, hypoplastic, depleted lymph node is the rule at autopsy. Some lymph nodes progress to complete hyalinization, whose degree correlates with the number and severity of infections.[21,22] These findings imply that HIV induces progressive lymphocyte loss and damage; thus, the pattern of histologic changes highlights the pathophysiologic alterations in the immune system that are precipitated by the AIDS virus.

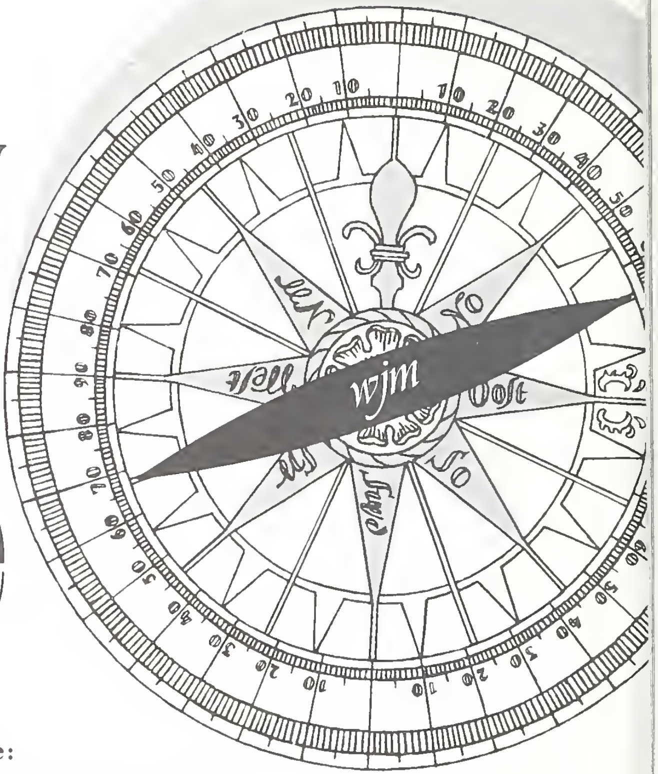
The present case vividly illustrates the complications which afflict patients with AIDS and which frequently lead to their downhill course. The case represents an immunohistologic as well as a clinico-pathologic correlation, because it is the defective immunologic response in AIDS patients which is responsible for the characteristic histologic findings seen on biopsy and at autopsy.

Although the extraordinary range of infections, both opportunistic and conventional, that were suffered by this patient, opens up areas of inquiry and speculation with regard to the pathophysiology of immunodeficiency, immune dysfunction expressed as infection constitutes only one aspect of the disease that bears further investigation. The neoplastic complications of AIDS, as well as the recently recognized neurotropism of HIV, serve to underscore that we are uncovering only the superficial layers of complexity in this confounding disease.

Final pathologic diagnoses: acquired immunodeficiency syndrome with multiple infections and associated extreme pan-intestinal hemorrhage. Severe systemic cytomegalovirus infection involving lungs, intestines, adrenal glands, and liver; systemic mycobacteriosis involving lymph nodes, intestines, liver, and lung; intestinal cryptosporidiosis; and polymicrobial bacterial pneumonia.

REFERENCES

1. Mandel GL, Douglas RG and Bennett JE: Principles and practice of infectious disease. New York: John Wiley and Sons, 1985.
2. Pinching AJ and Weiss RA: AIDS and the spectrum of HTLV-III/LAV infection. Int Rev Exp Pathol 1986 28:1-44.
3. Blaser MJ and Cohn DL: Opportunistic infections in patients with AIDS: clues to the epidemiology of AIDS and the relative virulence of pathogens. Rev Infect Dis 1986, 8:21-30.
4. Barre-Sinoussi F, Chermann JC, Rey F et al: Isolation of a T-lymphotrophic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS). Science 1983, 220:868-871.
5. Dalgleish AG, Beverley PCL, Clapham PR, Crawford DH, Greaves MF and Weiss RA: The CD4 (T4) antigen is an essential component of the receptor for the AIDS retrovirus. Nature 1984, 312:763-767.
6. Herrod HG. In: Synopsis of Pediatrics. JG Hughes and JF Griffith (eds), St. Louis: CV Mosby Company 1984, 675-680.
7. Roitt IM, Brostoff J and Male DK. In: Immunology, St. Louis: CV Mosby Company 1985.
8. Roitt IM: Essential Immunology, London: Blackwell Scientific Publications. Fifth edition, 1984.
9. Alcocer-Varela J, Alarcon-Segovia D and Abud-Mendoza C: Immunoregulatory circuits in the acquired immune deficiency syndrome and related complex. Production of and response to interleukins 1 and 2, NK function and its enhancement by interleukin-2, and kinetics of the autologous mixed lymphocyte reaction. Clin Exp Immunol 1985, 60:31-38.
10. Bowen DL, Lane HC and Fauci AS: Immunopathogenesis of the acquired immunodeficiency syndrome. Ann Intern Med 1985, 103:704-709.
11. Gluckman JC, Klatzmann D, Cavaille-Coll M et al: Is there correlation of T-cell proliferative functions and surface marker phenotypes in patients with acquired immune deficiency syndrome or lymphadenopathy syndrome? Clin Exp Immunol 1985, 60:8-16.
12. Murray JL, Hersh EM, Reuben JM, Munn CG and Mansell PWA: Abnormal lymphocyte response to exogenous interleukin-2 in homosexuals with acquired immune deficiency syndrome (AIDS) and AIDS-related complex (ARC). Clin Exp Immunol 1985, 60:25-30.
13. Hauser GJ, Bino T, Rosenberg H, Zakuth V, Geller E and Spirer Z: Interleukin-2 production and response to exogenous interleukin-2 in a patient with acquired immune deficiency syndrome (AIDS). Clin Exp Immunol 1984, 56:14-17.
14. Lopez C, Fitzgerald PA and Siegal FP: Severe acquired immune deficiency syndrome in male homosexuals: Diminished capacity to make interferon-alpha in vitro associated with severe opportunistic infections. J Infect Dis 1983, 148:962-966.
15. Murray HW, Rubin BY, Masur H and Roberts RB: Impaired production of lymphokines and immune (gamma) interferon in the acquired immunodeficiency syndrome. N Engl J Med 1984, 310:883-888.
16. DeStefano E, Friedman RM, Friedman-Kien AE et al: Acid-labile human leukocyte interferon in homosexual men with Kaposi's sarcoma and lymphadenopathy. J Infect Dis 1982, 146:451-455.
17. Rook AH, Masur H, Lane HC et al: Interleukin-2 enhances the depressed natural killer and cytomegalovirus-specific cytotoxic activities of lymphocytes from patients with the acquired immune deficiency syndrome. J Clin Invest 1983, 72:398-403.
18. Lane HC, Masur H, Edgar LC et al: Abnormalities of B-cell activation and immunoregulation in patients with the acquired immunodeficiency syndrome. N Engl J Med 1983, 309:453-458.
19. Euler HH, Kern P, Loffler H and Dietrich M: Precipitable immune complexes in healthy homosexual men, acquired immune deficiency syndrome and the related lymphadenopathy syndrome. Clin Exp Immunol 1985, 59:267-275.
20. Niedt GW, Schinella M: Acquired immunodeficiency syndrome: Clinicopathologic study of 56 autopsies. Arch Pathol Lab Med 1985, 109:727-734.
21. Mobley K, Rotterdam HZ, Lerner CW et al: Autopsy findings in the acquired immune deficiency syndrome. Pathol Annu 1985, 45-65.
22. Tapper ML, Rotterdam HZ, Lerner CW et al: Adrenal necrosis in the acquired immunodeficiency syndrome. Ann Intern Med 1984, 100:239-241.
23. Hui AN, Koss MW, Meyer PR: Necropsy findings in acquired immunodeficiency syndrome: A comparison of premortem diagnoses with postmortem findings. Hum Pathol 1984, 15:670-676.
24. Guarda LA, Luna MA, Smith JT et al: Acquired immune deficiency syndrome: Postmortem findings. Am J Clin Pathol 1984, 81:549-557.
25. Welch K, Finkbeiner W, Alpers CE et al: Autopsy findings in the acquired immune deficiency syndrome. JAMA 1984, 252:1152-1159.
26. Reichert CM, O'Leary TJ, Levins DL et al: Autopsy pathology in the acquired immune deficiency syndrome. Am J Pathol 1983, 112:357-382.



the new DIRECTIONS in medicine

Consider a few features of **The Western Journal of Medicine:**

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

WJ1/87

Enclosed is $________ to cover ________ subscriptions.

Subscription renewal ☐ Regular subscription ☐

Foreign subscription ☐

TO: ________________________

Street ________________________

City/State/Zip ________________________

Specialty ________________________

Gift Card to read "From ________________________"

The Western Journal of Medicine

Please mail this coupon with enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year
$90 2 years

Consensus Statement by the Breast Cancer Task Force

CONNECTICUT DIVISION OF THE AMERICAN CANCER SOCIETY

Introduction

Despite increased public awareness, better screening techniques, and new therapeutic options which provide many patients with cosmetically acceptable alternatives to mastectomy, breast cancer remains the fourth leading overall cause of death in women and the leading cause of death in women ages 35-54. One in every eleven women will at some point in her lifetime be diagnosed with breast cancer. At present 130,000 women annually are newly diagnosed with breast cancer. At least one-third eventually die of systemic manifestations of malignancy. Breast cancer becomes a systemic disease early in its course. Therefore, early diagnosis and aggressive management of the primary lesion, coupled with effective adjuvant chemotherapy in selected groups is vitally important if we hope to reduce the mortality from this disease. In 1985 we have seen decreased mortality from breast cancer for the first time, probably reflecting the results of earlier diagnosis made possible by the use mammography in larger scale during the past ten years. However, it is still a major cancer in women, and greater strides need to be made in earlier detection.

The primary care physician is usually the first medical specialist consulted by a women with a breast lump or other breast symptoms. Preventive health programs such as monthly breast self-examination, regular physical examination by a physician, and periodic mammography are often initiated as a result of the recommendation by the primary care physician. Thus, the primary care physician plays a vital role in altering the natural history of breast cancer by facilitating early diagnosis and therapy. The following monograph has some "good news" on breast cancer which we hope you will share with your female patients and incorporate into your practice and their preventive health care program.

Screening Programs

The two effective screening programs for breast cancer are breast self-examination and mammography. While ultrasound, computed tomography and thermography may be useful in limited, specific cases, none compares favorably with mammography as a screening device.

The majority of breast masses are first identified by the patient herself. Some women are apprehensive about self examination for variety of reasons. However, with proper instruction and encouragement from their physicians, and regular review of technique, most women can perform breast self-examination satisfactorily. The American Cancer Society will be happy to provide you or your patient with instructional guides and audio-visual materials that clearly and simply demonstrate breast self-examination.

Mammography remains the radiographic screening procedure of choice in the detection of breast cancer in its early stages. Two methods of mammography are in general use: film screen mammography and xeromammography. Modern, dedicated, film mammography machines which deliver less radiation and provide pictures of better detail and quality, has lately become a favored method over the once popular xeromammography. Lesions less than one centimeter in diameter are rarely detectable by palpation. However by the time a breast cancer has reached one centimeter in diameter, 10%-20% of tumors have already spread to regional lymph glands. In contrast, cancers as small as two millimeters in diameter frequently can be and are identified by mammography. Survival advantage in these patients is obvious.

The health dangers due to radiation exposure to the breasts and the remainder of the body are minimal, and the concerns expressed by the patient and physician about the radiation-induced tumors are unjustified. With the wider use of dedicated mammography equipment and trained and experienced mammography technicians and radiologists, the breast dose of radiation should be less than ½ rad. A two view screening mammogram will deliver 0.7 rad to the breast. It is expected that the new generation of films currently being developed will decrease this dose even further to about 0.04 rad per film. Odds of inducing cancer is calculated to be about 166,000 to 1; it would take 300 mammograms with the newer films before there is an increased risk of causing cancer from the radiation accumulated from mammograms. It is estimated that in screening the adult female population, beginning at age 35, nearly 1000 early, non-palpable breast cancers would be detected in otherwise asymptomatic women for each case of breast cancer "theoretically" induced by the radiation exposure from mammography. Certainly, there are no data to suggest that diagnostic radiation induces breast cancer, and no data to suggest that radiation induces breast cancer in women under the age of 35. The only data concerning breast cancer induction by radiation are extrapolated from atomic bomb experience, the mastitis experience, and the tuberculosis fluoroscopy experience. These types of radiation doses are significantly higher than those currently used with the diagnostic mammography as recommended in this monograph.

A baseline mammogram for *ALL* women no later than age 35 should be obtained. Women between the ages of 40 and 49 should have a mammogram every one to two years, and annual mammograms should be performed after the age of 50. In high risk groups (women with previous breast cancer or strong family history of breast cancer), screening should be initiated 5-10 years earlier, and follow-up examinations performed at more frequent intervals thereafter. Both breast self-examination and mammography should always be accompanied by an examination by the physician. Some breast cancers are detected by the physician in patients whose mammograms are non-diagnostic, either because of the location of the tumor which is outside of the area covered by the film, or because of the tumor density precluding the image from projecting on the film. Examination by the physician should be done every 1-3 years between the ages 20-40, or more often if indicated by an suspicious finding or increased risk factors such as family history of breast cancer. After the age of 40, examination should be done at least annually.

Primary Treatment

Since 1960 there have been dramatic changes in the philosophy of surgical treatment of primary breast cancer. The classical radical mastectomy, first introduced by Halsted and Meyer in the 1890's, has been replaced by the modified radical mastectomy, which preserves the major chest wall muscles. More conservative procedures such as lumpectomy and radiation therapy, have recently been utilized successfully in selected patients. In this breast preservation therapy, the breast tumor is removed with a margin of normal breast tissue, the axillary nodes are removed for histopathologic study, and the remaining breast is then radiated post-operatively. Many large clinical trials indicate that there is no difference in disease-free survival, local control, or overall survival between modified radical mastectomy and excision, axillary dissection-breast radiation therapy in appropriately selected patients with early stage breast cancer. These include non-randomized trials done both in the United States and abroad over the past 20-25 years as well as large prospective randomized trials conducted in Milan, Scandinavia, and in this country by the National Surgical Adjuvant Breast and Bowel Project. The latter study would indicate that excision alone without radiation has resulted in a high local failure rate (approximately 30-40%) and an increased risk of metastatic disease as compared with treatment with excision and radiation or with modified radical mastectomy. It would therefore appear that radiation following excision and axillary node dissection is able to sterilize residual microscopic disease in the breast.

Conservative surgery with irradiation is an appropriate alternative to mastectomy when the tumor is relatively small as compared to the size of the breast and not located under or close to the nipple-areolar complex so that a good cosmetic result can be obtained. It must also be of the appropriate histopathological type. Cancers with a significant incidence of multicentricity, or cancers that are greater than 4 centimeters in diameter may be better treated with mastectomy. If a patient is a suitable candidate for breast conservation therapy, radiation given as part of this treatment program usually consists of 4,500 to 5,000 rad to the whole breast. This is followed by a boost to the tumor bed with either iridium implantation or local external beam irradiation. This technique, which has developed over the past ten or fifteen years, results in excellent cosmesis. Much attention must be given to the techniques used, and this radiation should therefore be supervised by an experienced radiation oncologist. The side-effects of radiation therapy of this type are minimal and consist primarily of slight fatigue and transient skin edema and erythema. Although the treatment takes approximately five to six weeks, patients are generally able to continue their usual work and other activities. With less extensive therapy alternatives available, it is hoped that patient anxiety concerning breast cancer detection and treatment is reduced, and that women with breast findings will therefore seek medical advice earlier from their physicians.

Isolated local or regional recurrence is rarely the cause of death from breast cancer. Axillary node dissection is primarily of prognostic importance. Involvement of the axillary nodes would appear to indicate increased risk of systemic relapse and is therefore indicative of micrometastatic disease elsewhere. Thus adjuvant therapy is indicated. Cytotoxic adjuvant chemotherapy with agents such as Cytoxan, Methotrexate, 5-FU and Adriamycin have significantly improved survival of premenopausal node-positive patients. Antiestrogen therapy with tamoxifen appears to be effective in postmenopausal node-positive patients with positive hormone receptors. Clinically involved nodes do not constitute a contraindication to any of the local treatment options discussed above.

Axillary node involvement, tumor size, histology, menopausal status, presence or absence of hormone receptors both for estrogen and progesterone are the major determinants of the need for adjuvant therapy, and are the major predictors of the outcome. There may also be patient subsets, as yet not clearly documented, with negative axillary nodes but with other poor prognostic signs, who may also benefit from adjuvant therapy. A recent "Consensus Development Conference on Adjuvant Chemotherapy for Breast Cancer" reached the following conclusions concerning postoperative therapy for women with Stage I and Stage II breast cancers.

1. For premenopausal women with positive nodes, regardless of hormone receptor status, treatment with established combination chemotherapy should become standard care.

2. For premenopausal patients with negative nodes, adjuvant therapy is not generally recommended. For certain high risk patients in this group adjuvant chemotherapy may be considered.

3. For postmenopausal women with positive nodes and positive hormone receptor levels, tamoxifen is the treatment of choice.

4. For postmenopasual women with negative nodes, regardless of hormone receptor levels, there is no indication for routine adjuvant treatment. For certain high risk patients in this group, adjuvant therapy may be considered.

Perhaps the most important statement in the Consensus Development Conference report immediately preceeded these four conclusions: "While significant advances have been made to participate in clinical trials, optimal therapy has not been defined for many subsets of patients." For this reason, *ALL PATIENTS AND THEIR PHYSICIANS ARE STRONGLY ENCOURAGED TO PARTICIPATE IN CONTROLLED CLINICAL TRIALS.* With many questions about optimal breast chemotheraphy as yet unanswered, it is disappointing that in the United States only 3% of new patients with clinically localized breast cancer (Stages I and II) are currently entered into randomized, prospective trials of adjuvant chemotherapy. The primary care physician can be of vital assistance in increasing the percentage of patients entered into much-needed prospective trials. Most oncologists in Connecticut have access to protocol studies of adjuvant therapy.

Most patients undergoing mastectomy can receive breast reconstruction if desired. Many surgeons prefer to wait at least six months following mastectomy, to allow full healing of the wound. Concerns about masking the detection of local recurrence of cancer appear unjustified. The position of the silicone breast prostheses *beneath* the pectoral muscles does not prevent detection of skin and subcutaneous recurrences. Nipple reconstruction can also be performed, although it is of lesser importance than restoration of contour of the patient's figure. Postoperative radiation therapy, or more extensive initial surgery, such as classical radical mastectomy, may require additional reconstructive procedures, such as latissimus dorsi or rectus abdominis muscle flaps. Nearly all patients can be offered improved cosmetic effects from surgical reconstruction following mastectomy.

Metastatic Breast Cancer

Tamoxifen and other oral agents have largely replaced oophorectomy and adrenalectomy in the palliation of patients with clinically evident metastatic breast cancer. Tumors with significant measurable hormone receptors (estrogen, progesterone) have a 60% clinical response rate to hormonal therapy. Combination cytotoxic chemotherapy with agents such as Cytoxan, 5-FU, Methotrexate, Adriamycin, Vincristine, and L-PAM, is required in patients with receptor-negative metastatic breast cancer. Radiation therapy continues to provide effective control of local and regional recurrent disease, and in the treatment of isolated, symptomatic areas of metastases such as bone and brain. Ongoing research in the treatment of metastatic breast cancer includes the study of new chemotherapeutic agents, alone or in combination. New strategies in chemotheraphy, such as tumor vaccines, use of nonspecific immune stimulators, lymphokine activated killer cells (LAK cells), and other biologic response modifiers are also under active investigation.

Conclusion

There is encouraging news in the fight against breast cancer. Mammography, periodic physical examinations by the physician, and the self-breast examination are effective in the early diagnosis of breast malignancy. As a result, many patients now present with much smaller lesions than women in the preceeding decade, and are therefore good candidates for excision, axillary dissection, and radiation therapy. This appears to be as successful as the modified radical mastectomy in the treatment of this disease. Modified radical mastectomy also is associated with a less morbidity than classical radical mastectomy. If desired, postoperative breast reconstruction can be performed following mastectomy. Adjuvant chemotherapy has improved survival rates in node-positive patients in the premenopausal group following primary therapy. Finally, new chemotherapy protocols which may in the future include the promising biologic response modifiers, offer the promise of even greater success in the adjuvant setting and in the treatment of established metastatic disease.

As primary physicians, you are the first line of defense. The American Cancer Society will be happy to provide additional educational materials for you and your patients. We can and must do better for our breast cancer patients, but only with your help.

M.T. Ergin, M.D., Chairman, Hartford
Paul S. Berger, M.D., Bridgeport
Edward Dunn, M.D., Waterbury
Robert Handschumacher, PhD, New Haven
William Hewitt, M.D., Hartford
John C. Marsh, M.D., New Haven
Irwin Nash, M.D., New Haven
Sherwin B. Nuland, M.D., New Haven
John Russell, M.D., Hartford
Andrew Salner, M.D., Hartford
Robert Sax, M.D., Bridgeport

CNA has been helping physicians control risks for years.

Controlling risks is one effective way to help you and the CNA Insurance Companies contain the increasing cost of medical malpractice insurance. Together, through the Connecticut physicians loss control seminars, we are making a difference.

The seminars are designed to help you avoid claims by improving your practice. And we'll demonstrate the proper steps in handling a claim. You'll receive up-to-date information from local physicians, defense attorneys specializing in medical malpractice and CNA claims specialists.

You'll earn a premium credit for completing the workshop. And in some cases, you'll earn CME credits, too. Learn more about controlling risks. Contact the CNA program administrator today.

A. A. W. Physicians Plan, Inc.
225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The CNA Physicians Protection Program is underwritten by Continental Casualty Company, one of the CNA Insurance Companies.

CNA
For All the Commitments You Make®

Premature Mortality in the United States: Public Health Issues in the Use of Years of Potential Life Lost

CENTERS FOR DISEASE CONTROL

Introduction

Mortality statistics are frequently used to quantitate the extent of public health problems and to determine the relative importance of the various causes of death. Analyses of crude and age-adjusted death rates have traditionally played an important role in this process; they enable priorities to be set and progress towards the achievement of public health goals to be monitored. Although these rates are important measures of the nation's health status, they often fail to tell the entire story of temporal changes in mortality. Since most deaths occur among persons in older age groups, crude and age-adjusted mortality data are dominated by the underlying disease processes of the elderly.

Alternative measures have been proposed to reflect the mortality trends of younger age groups. These measures provide a more accurate picture of premature mortality by weighting deaths occurring at younger ages more heavily than those occuring in older populations. One of these measures is the years of potential life lost (YPLL).

Historical Perspectives on Premature Mortality

In 1947, as a supplement to crude mortality figures, Dempsey introduced a method of quantifying premature mortality to measure the changing mortality consequences of tuberculosis.[1] She tabulated the "potential years of life lost" by subtracting the age at death from the life expectancy at birth for persons who died during 1942 from heart disease, cancer, and tuberculosis. Greville subsequently altered this calculation, weighting each death by the life expectancy remaing at death.[2] He also introduced the use of life tables calculated on the assumption that the given disease had been eliminated as a cause of death for all older age groups. This adjustment (the "zero-mortality assumption") only slightly changed the overall distribution of years of life lost and did not affect the rank order of causes.[3]

Haenszel proposed directly age adjusting death rates to a standard population and then computing years of life lost from the resulting standardized deaths.[4] Studies comparing temporal tends of premature mortality in populations widely separated in time have used a similar approach.[5,6] In addition, standardized rates of "potentially productive years of life lost" have been developed to adjust for different age structures among populations and to describe race- and sex-specific patterns of premature mortality.[7]

The use of premature mortality measures has recently become somewhat more common as a mechanism for establishing public health priorities.[7-10] For this reason, the CDC introduced Table V of the *MMWR* in 1982. This table appears monthly and ranks the leading causes of premature mortality.[11]

Methodologic Alternatives in YPLL Calculation

Although many authors have emphasized the importance of the concept of premature mortality, there is no consensus on a functional definition or the best means of deriving a quantitative measure. Such a measure is necessary to monitor yearly trends in the pattern of premature mortality as well as to compare the relative importance of specified causes of death. This report will focus on YPLL, the measure of premature mortality used at CDC for the preparation of Table V of the *MMWR*. This section documents the current method of calculating YPLL used at CDC and discusses several adaptions of this measure for use in different situations.

Present Method of Calculation

For routine publication of Table V, YPLL is defined as the number of years of potential life lost by each death occurring before a predetermined end point, set at age 65 years. CDC calculates YPLL over the age range from birth to 65 years using age-specific death rates for 15 selected causes and supplementary data on causes of infant mortality, provided yearly by the National Center for Health Statistics (NCHS).[12] For timeliness, these data are estimated from a 10% sample of all death certificates filed during the year. Causes of death are grouped by an algorithm devised by NCHS to reflect the underlying cause of death as reported on the death certificate and the pathophysiologic process or organ system involved (i.e., malignant neoplasms or diseases of the heart).

The cause- and age-specific death rate is multiplied by the estimated population in that age range (provided by the Bureau of the Census) to determine the number and age distribution of deaths attributable to a specific

---

Morbidity and Mortality Weekly Reports, (Vol. 35, No. 2S, 1986 and Vol. 36, No. 4, 1987).

cause.[13] The number of deaths for each age is then multiplied by the years of life lost (the difference between the designated 65-year end point and the midpoint of the age range) to give an age-specific YPLL. For example, in the population 15-24 years old, the midpoint is 20 years and the YPLL is 45 years. Finally, the age-specific YPLLs are summed to give a total YPLL for each cause. The resulting distribution of YPLL, by cause, appears monthly as Table V (Table 1).

Table 1

ESTIMATED YEARS OF POTENTIAL LIFE LOST (YPLL) BEFORE AGE 65 AND MORTALITY, BY CAUSE OF DEATH, UNITED STATES, 1984

Cause of Mortality (Ninth Revision ICD)	*YPLL (in thousands) for persons dying in 1984*	*Cause-specific mortality (rate/100,000)*
ALL CAUSES (Total)	11,761	866.7
Unintentional injuries (E800-E949)	2,308	40.1
Malignant neoplasms (140-208)	1,803	191.6
Diseases of the heart (390-398, 402, 404-429)	1,563	324.4
Suicide and homicide (E950-E978)	1,247	20.6
Congenital anomalies (740-759)	684	5.6
Prematurity (765, 769)	470	3.0
Sudden infant death syndrome (798)	314	2.0
Cerebrovascular diseases (430-438)	266	65.6
Chronic liver diseases and cirrhosis (571)	233	11.3
Pneumonia and influenza (480-487)	163	25.0
Chronic obstructive pulmonary diseases (490-496)	123	29.8
Diabetes mellitus (250)	119	15.6

A persistent controversy in the calculation of YPLL concerns the definition of an upper end point. The CDC method of calculation does not count deaths of persons 65 years or older and assumes only 5 years of life lost for deaths of persons aged 55-64 years. In 1984, however, the remaining life expectancy for a 60-year-old person was 20.4[12] Thus, deaths in older age groups are underrepresented by the upper age limit of 65 years. However, this method preserves the emphasis on causes of mortality among younger persons.

Life-Expectancy Method

An alternative form of YPLL can be calculated that emphasizes the total life expectancy remaining at the time of death (Table 2). Age-specific death rates and population estimates are obtained from the same sources, but would not be truncated at age 65,[12,13] The number of deaths estimated as above, but the YPLL for each death is calculated by taking the difference between the midpoint of the age range and the remaining life expectancy at that age from an abridged life table published yearly by NCHS.[12] This table assumes that the risk of death in future years is approximated by the age-specific death rates for all causes in effect for the past year. For example, in the 75- 84-year age group, the remaining life expectancy at the midpoint (80 years) was 8.2 years in 1984.

Table 2

ESTIMATED YEARS OF POTENTIAL LIFE LOST (YPLL)* AND MORTALITY, BY CAUSE OF DEATH, UNITED STATES, 1984

Cause of Mortality (Ninth Revision ICD)	*YPLL (in thousands) for persons dying in 1984*	*Cause-specific mortality (rate/100,000)*
ALL CAUSES (Total)	33,581	866.7
Diseases of the heart (390-398, 402, 404-429)	9,400	324.4
Malignant neoplasms (140-208)	7,171	191.6
Unintentional injuries (E800-E949)	3,381	40.1
Suicide and homicide (E950-E978)	1,833	20.6
Cerebrovascular diseases (740-759)	1,735	65.6
Chronic obstructive pulmonary diseases (490-496)	903	29.8
Congenital anomalies (740-759)	820	5.6
Pneumonia and influenza (480-487)	691	25.4
Chronic liver diseases and cirrhosis (571)	585	11.3
Prematurity (765, 769)	548	3.0
Diabetes mellitus (250)	525	15.6
Sudden infant death syndrome (798)	361	2.0

*Calculated by the remaining-life-expectancy method.

The number of deaths in each age group, grouped by underlying cause of death, is then multiplied by the remaining life expectancy at the midpoint of each age range, and the resulting numbers for all age groups are summed to obtain the total YPLL for this cause. Not surprisingly, this substantially changes both the total YPLL and the relative rankings for each cause (Table 3). When derived by the remaining-life-expectancy method, the proportion of YPLL attributable to each individual cause more closely resembles the pattern of cause-specific mortality than that of YPLL before age 65 (Figure 1).

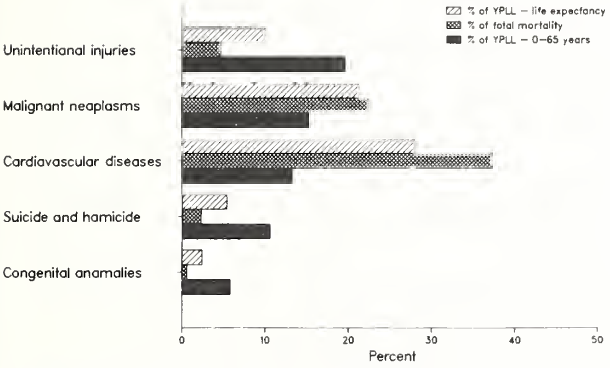
Mortality Groups

Another issue in the calculation of YPLL concerns the grouping of underlying causes of death as provided by NCHS. As a measure of mortality, YPLL underestimates the importance of diseases that contribute to, but are not recorded as, the underlying cause of death. A complete listing of any condition contributing to death is available from the NCHS tape “Mortality—Multiple Causes of Death,” on which each condition recorded on the death

Table 3
RANKINGS OF THE 10 LEADING CAUSES OF MORTALITY AND YEARS OF POTENTIAL LIFE LOST (YPLL), BY METHOD OF CALCULATION, UNITED STATES, 1984

Ranking	*Crude mortality*	*YPLL – 0-65 years*	*YPLL – life expectancy*
1	Heart disease	Unintentional injuries	Heart disease
2	Malignant neoplasms	Malignant neoplasms	Malignant neoplasms
3	Cerebrovascular disease	Heart disease	Unintentional injuries
4	Unintentional injuries	Suicide and homicide	Suicide and homicide
5	COPD*	Congential anomalies	Cerebrovascular disease
6	Pneumonia/influenza	Prematurity	COPD*
7	Suicide and homicide	Sudden infant death syndrome	Congenital anomalies
8	Diabetes	Cerebrovascular disease	Pneumonia/influenza
9	Cirrhosis	Cirrhosis	Cirrhosis
10	Congenital anomalies	Pneumonia/influenza	Diabetes

*Chronic obstructive pulmonary disease and allied conditions.



*Calculated by *MMWR* method (0-65 years) and by remaining-life-expectancy method

Figure 1
Percentage of years of potential life lost (YPLL)* and total mortality, by cause of death, United States, 1984

certificate as either a contributing or an underlying cause of death is coded according to the *International Classification of Diseases*, Ninth Revision, Clinical Modification (ICD-9 CM).

In addition, it is impossible at present to calculate YPLL on a timely basis for those diseases or disease categories that are not reported separately by NCHS, such as a composite category of YPLL attributable to all infectious diseases. Age-specific death rates are supplied annually by NCHS for only the 15 leading causes of mortality and certain causes of infant mortality. For example, no summary data on mortality due to infectious diseases would be available in the annual report other than the categories of pneumonia and influenza or septicemia.[12] However, the tape "Mortality – Underlying Cause of Death" contains detailed listings of all deaths, with the coded underlying cause of death. This tape is available from NCHS, but only after a lag time of several years after publication of data from the 10% sample. Therefore, although these data allow for a more individualized design of mortality groups by ICD-9 CM codes, they are not useful when timeliness is important.

Age Limits

Some research may benefit from alterations in the YPLL age limits, either to emphasize the effects of a condition in a population at increased risk of illness or to study a particular sub-population of interest. For example, a recent review of the premature mortality consequences of the acquired immunodeficiency syndrome (AIDS) was limited to persons aged 25-44, the ages with the highest incidence of illness.[14] The most common use of this approach in the literature is to study the working years of life lost, calculated over the age range from age 15 or 20 to 65 years.[3,4,6,7]

YPLL Rates and Age Adjustment

When yearly trends in YPLL are compared for dynamic populations or for substantially different populations, it may be helpful to calculate YPLL rates per 1,000 persons in the age range. Use of the YPLL rate adjusts the total and cause-specific YPLL for differences in total population. For example, although the total YPLL increased 0.4% from 1983 to 1984, the rate of YPLL per 1,000 persons decreased by 0.4%.[15] Similarly, if two population groups have different age structures, it is preferable to compare standarized or age-adjusted YPLL rates. This rate is derived by multiplying the age-specific death rates by a reference population, either directly adjusting one group to the other or adjusting both groups to an external standard. As an example, when one compares rates of YPLL for whites with those for American Indians and Alaskan Natives, it may be more accurate to adjust the rates for age because of the marked difference in the age structure of the comparison groups.[16]

Trends in YPLL and YPLL Rates, 1979-1984

Premature mortality in the United States, as measured by YPLL, decreased in the 6-year period 1979-1984 (Figure 2). The total of years potential life lost before age 65 from all causes decreased from 13.1 million YPLL in 1979 to 11.8 million in 1984, a difference of 10.4%. Over 40% of this change in the total YPLL is due to a decrease in premature mortality attributable to unintentional injuries.

YPLL due to 10 of the 12 leading causes decreased during this time frame (Table 4). The largest proportionate decreases were for chronic liver disease and cirrhosis (down 22.3%), unintentional injuries (down 19.2%), and

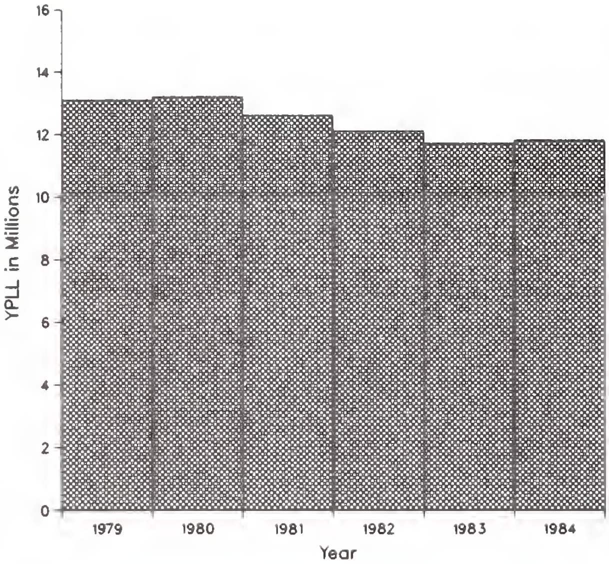
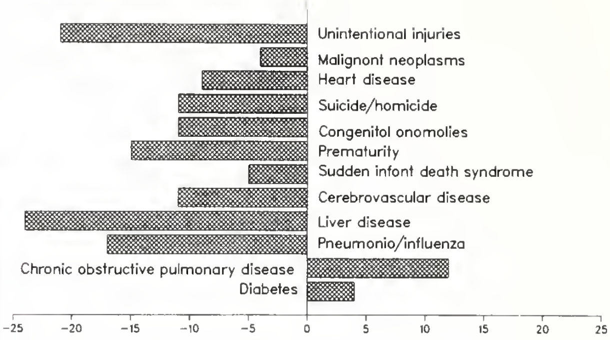


Figure 2

Years of potential life lost (YPLL) before age 65, from all causes, United States, 1979-1984



*YPLL per 1,000 persons less than 65 years of age

Figure 3

Percent change in rates of years of potential life lost (YPLL)* before age 65, selected causes, United States, 1979-1984

pneumonia and influenza (down 14.7%). In addition, a 13.1% decrease occurred in infant deaths associated with premature birth, that is, deaths coded with the ICD-9 rubric 765 or 769—respiratory distress syndrome and disorders associated with short gestation and unspecified low birth weight. Only YPLL from chronic obstructive pulmonary disease and allied conditions (up 20.6%) and diabetes mellitus (up 7.2%) increased.

The rate of YPLL per 1,000 persons less than 65 years of age for all causes of death decreased by 12.8% from 1979 to 1984. The population in the age range increased 5.5 million persons, augmenting the decrease in the total YPLL. YPLL rates also decreased for these same 10 leading causes of premature mortality (Figure 3).

Variations in the Pattern of YPLL

In addition to the programmatic implications of year-to-year changes in the total and cause-specific rates of YPLL, there may be marked differences in the rankings of the causes of YPLL among pouplation subgroups. These differences can indicate populations with an increased risk of premature mortality (e.g., males compared with females) or identify individual causes of mortality of particular importance in certain of these groups, such as homicide among young black males. Interventions designed to alter this risk could then be targeted towards groups at highest risk, thereby increasing the effectivenss of those interventions. In this section, we examine differences in YPLL by race and sex and discuss its potential uses at the state and local levels.

Racial Variations in YPLL

Rates of premature mortality differ considerably among racial groups in the United States. During 1982, blacks had a YPLL rate from all causes of 99.2/1,000 population, a rate nearly twice that of whites (53.6/1,000 population). (Persons of other races are exlcuded from this consideration because they constitute a smaller and much more heterogeneous group that is not directly comparable to the other populations.) Clearly, blacks as a group are at increased risk of premature death when compared with whites.

Table 4

YEARS OF POTENTIAL LIFE LOST (YPLL) BEFORE AGE 65 AND PERCENT CHANGE, SELECTED CAUSES, UNITED STATES, 1979 AND 1984

Cause of Mortality	*YPLL (in thousands)* 1979	1984	*Percent change* 1979-1984
ALL CAUSES	13,123	11,761	−10.4
Unintentional injuries	2,858	2,308	−19.2
Heart disease	1,678	1,563	−6.9
Malignant neoplasms	1,829	1,803	−1.4
Suicide and homicide	1,357	1,247	−8.1
Prematurity	541	470	−13.1
Congenital malformations	749	684	−8.7
Sudden infant death syndrome	320	314	−1.9
Cerebrovascular disease	290	266	−8.3
Chronic liver disease	300	233	−22.3
Pneumonia and influenza	191	163	−14.7
Diabetes mellitus	111	119	+7.2
Chronic obstructive pulmonary disease	102	123	+20.6

Table 5

RATES OF YEARS OF POTENTIAL LIFE LOST (YPLL)* AND YPLL RATE RATIOS, BY RACE, SELECTED CAUSES, UNITED STATES, 1982

Cause of Mortality	Rates of YPLL Blacks	 Whites	YPLL rate ratio (Black/white)
Suicide and homicide	13.6	5.4	2.5
Unintentional injuries	12.7	11.6	1.1
Heart disease	11.7	6.5	1.8
Malignant neoplasms	10.4	8.8	1.2
Prematurity	6.2	1.9	3.3
Congenital malformations	4.8	3.4	1.4
Sudden infant death syndrome	3.7	1.3	2.8
Cerebrovascular disease	2.9	0.8	3.6
Chronic liver disease	2.3	1.1	2.1
Pneumonia and influenza	2.0	0.6	3.3
Diabetes mellitus	1.0	0.5	2.0
Chronic obstructive pulmonary disease	0.9	0.5	1.8

*YPLL before age 65 per 1,000 persons less than 65 years

Table 6

RATES OF YEARS OF POTENTIAL LIFE LOST (YPLL)* AND YPLL RATE RATIOS, BY SEX, SELECTED CAUSES, UNITED STATES, 1982

Cause of Mortality	Rates of YPLL Males	 Females	YPLL rate ratio (male/female)
Unintentional injuries	17.8	5.7	3.1
Suicide and homicide	10.1	2.9	3.5
Heart disease	9.7	4.4	2.2
Malignant neoplasms	9.2	8.5	1.1
Congenital malformations	3.8	3.3	1.2
Prematurity	2.8	2.0	1.4
Sudden infant death syndrome	2.0	1.3	1.5
Chronic liver disease	1.7	0.8	2.1
Cerebrovascular disease	1.3	1.2	1.1
Pneumonia and influenza	1.0	0.6	1.7
Chronic obstructive pulmonary disease	0.7	0.6	1.4
Diabetes mellitus	0.6	0.5	1.2

*YPLL before age 65 per 1,000 persons less than 65 years

In accordance with the racial disparity in rates of premature mortality from all causes, blacks have higher YPLL rates than whites for all of the causes of mortality presented in Table V of the *MMWR*, with ratios ranging from 1.1 to 3.6 times the rates of the white population (Table 5). The largest ratios, those causes for which blacks have the highest excess premature mortality, are sudden infant death syndrome, prematurity, and pneumonia and influenza.

Differences in the relative ranks of the leading causes of premature mortality can also be noted between races. For example, suicide/homicide was the leading cause of premature mortality for blacks in 1982 (13.6 YPLL/1,000 persons), but the fourth leading cause for whites 5.4/1,000 persons). The rates for unintentional injuries and malignant neoplasms, however, are more comparable (ranking first and second, respectively, for whites, and second and fourth for blacks).

Variations in YPLL by Sex

The rate of YPLL from all causes varies considerably for males and females. Males had a rate of 76.6 YPLL/1,000 population in 1982, nearly twice the rate for females (41.6/1,000 population). In addition, men had higher rates than women for all of the 12 leading causes of premature mortality, with YPLL rate ratios ranging from 1.1 to 3.5 (Table 6). The largest excess in male premature mortality is in intentional (suicide and homicide) and unintentional injuries, with ratios of 3.5 and 3.1, respectively. In contrast, the rates for malignant neoplasms and cerebrovascular diseases have male-to-female ratios of 1.1.

Similar to the differences in racial groups, the ranking of sex-specific YPLL rates by cause varies markedly by sex. As an illustration, although the rates for malignant neoplasms are similar for both sexes (9.2 YPLL/1,000 population for men and 8.5/1,000 for women), malignant neoplasms are the leading cause of premature mortality for women but only the fourth leading cause for men. This difference reflects the excess risk of premature mortality for men due to heart disease and unintentional and violent injuries.

Race- and Sex-Specific YPLL Rates

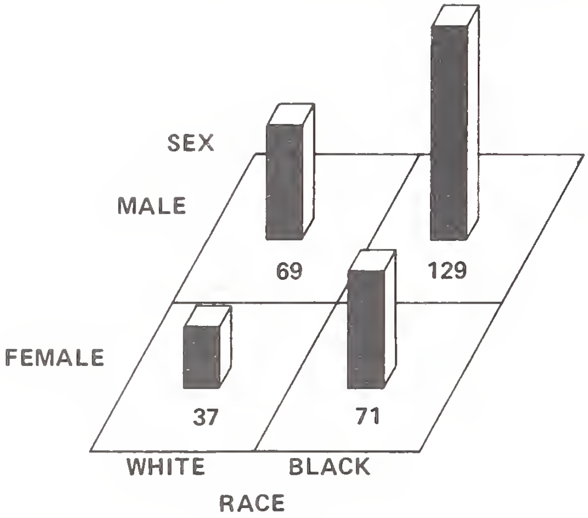
To define public health priorities further, race- and sex-specific YPLL rates can be determined. Black males had

Table 7

RATES OF YEARS OF POTENTIAL LIFE LOST (YPLL*), BY RACE AND SEX, SELECTED CAUSES, UNITED STATES, 1982

Causes of Mortality	*Rates of YPLL* *Black males*	*Black females*	*White males*	*White females*
Suicide and homicide	23.1	4.9	8.3	2.6
Unintentional injuries	19.4	6.5	7.7	5.5
Heart disease	15.0	8.5	9.1	3.8
Malignant neoplasms	11.6	9.4	9.0	8.5
Prematurity	7.3	5.1	2.2	1.6
Congenital malformations	5.1	4.5	3.6	3.1
Sudden infant death syndrome	4.4	3.1	1.7	1.0
Chronic liver disease	3.0	1.8	1.5	0.6
Cerebrovascular disease	3.1	2.7	1.1	1.0
Pneumonia and influenza	2.5	1.5	0.7	0.5
Chronic obstructive pulmonary disease	1.1	0.7	0.6	0.4
Diabetes mellitus	0.9	1.0	0.5	0.4

*YPLL before age 65 per 1,000 persons less than 65 years



*YPLL per 1,000 persons less than 65 years of age

Figure 4

Rates of years of potential life lost (YPLL)* before age 65, all causes, by race and sex, United States, 1982

the highest rate of YPLL from all causes in 1982, followed by black women and white men; white women had the lowest rate (Figure 4). Black males had 3.5 times the risk of premature mortality of white women, while black women and white men had a rate nearly twice that of white women. Black men have now been clearly identified as the group most at risk of premature death and, consequently, most in need of interventions to lower this risk.

An even more striking difference can be noted in selected cause-specific YPLL rates (Table 7). Intentional injuries, particularly homicide, are identified as predominantly a condition affecting black males, with white males having the second highest rate. In contrast, the pattern for malignant neoplasms is more evenly disturbed among all race/sex groups.

Public Health Uses of YPLL

YPLL is only one of a number of mortality measures that have broad public health applications. Yet this simple index of premature mortality can complement traditional methods of quantitating mortality, such as crude or age-adjusted death rates. The major strengths of YPLL are that it is simple to compute and comprehend and it effectively emphasizes deaths of younger persons, in contrast to usual mortality statistics, which are dominated by deaths of the elderly.

Geographic variations in premature mortality can also be a useful tool for health planning at the state or local level. A delineation of the pattern of YPLL rates among varied populations can provide an accurate description of the causes of premature mortality for those persons at highest risk of premature death. This type of analysis can be done on national data, such as presented in this document, or on local mortality data.

State-specific rates of YPLL can be used for planning and evaluating local public health interventions. Sex- and race-specific YPLL rates can, within the statistical limitation of population size, be used to target and monitor those populations at highest risk. Calculation of YPLL at the state level is presently being evaluated by CDC in cooperation with interested state health departments. For example, the importance of meningitis and unintentional injuries as causes of premature mortality in Alaska can be readily seen by the calculation of YPLL (CDC, unpublished data).

YPLL and YPLL rates can assist in the performance of three basic public health functions: the establishment of research and resource priorities, the surveillance of temporal trends in premature mortality, and the evaluation of the effectiveness of program interventions. Within certain limitations, YPLL can serve these functions at the national, state, or local level. Finally, quantifying YPLL for individual causes of mortality or for behavioral risk factors associated with a range of mortality consequences (e.g., tobacco or alcohol use) can provide a simple method to target health education efforts to sections of the general population most in need of public health interventions.

REFERENCES

1. Dempsey M. Decline in tuberculosis: death rate fails to tell entire story. Am Rev Tuberculosis 1947, 56:157-64.
2. Grevill TNE. Decline in tuberculosis: death rate fails to tell entire story (Comment on Dempsey's article.) Am Rev Tuberculosis 1948, 57:417-9.
3. Dickinson FG, Walker EL. What is the leading cause of death? AMA Bulletin 1948, 64:1-25.
4. Haenszel W. Standardized rate for mortality defined in units of lost years of life. Am J Public Health 1950, 40:17-26.
5. Doughty JH. Mortality in terms of lost years of life. Can J Public Health 1951, 42:134-41.
6. Logan WP, Benjamin B. Loss of expected years of life—a perspective view of changes between 1848-72 and 1952. Month Bull Min Health (Gr Britain) 1953, 12:244-52.
7. Perloff JD, LeBailly SA, Kletke PR, Budetti PP, Connelly JP. Premature death in the United States: years of life lost and health priorities. J Public Health Policy 1984, 5:167-84.
8. Stickle G. What priority, human life? Am J Public Health 1965, 55:1692-8.
9. Romeder JM, McWhinnie JR. Potential years of life lost between ages 1 and 70: and indicator of premature mortality for health planning. Int J Epidemiol 1977, 6:143-51.
10. Lalonde M. A new perspective on the health of Canadians: a working document. Ottawa, Canada: Department of National Health and Welfare, 1974.
11. CDC. Introduction to Table V: premature deaths, monthly mortality, and monthly physician contacts—United States. MMWR 1982, 31:109-10, 117.
12. National Center for Health Statistics. Annual summary of births, marriages, divorces, and deaths, United States 1984. Hyattville Md.: Publich Health Service 1985. (Monthly Vital Statistics Report Vol 33, No 13.) (DHHS publication no (PHS) 85-1120).
13. US Bureau of the Census. Current population reports, series P-25, No 965. Estimates of the population of the United States, by age, sex, and race: 1980 to 1984. Washington DC: US Government Printing Office, 1985.
14. Jaffe HW, Hardy AM, Morgan WM, Darrow WW. The acquired immunodeficiency syndrome in gay men. Ann Intern Med 1985, 103:662-664.
15. CDC. Changes in premature mortality—United States, 1983-1984. MMWR 1986, 35:27, 29-31.
16. CDC. Alcohol-associated premature mortality—United States, 1980. MMWR 1985, 34:493-5.

Changes in Premature Mortality—United States, 1984-1985

Premature mortality in the United States, as measured in total years of potential life lost (YPLL) before age 65, increased from 11,788,125 in 1984 to 11,844,475 in 1985, an increase of 0.5%. This is the second straight year with an increase in total YPLL; prior to this increase, there had been 3 years of gradual decline. However, the rate of YPLL/1,000 persons has decreased every year since 1980. In 1985, the rate decreased 0.3% from the 1984 level; this is explained by an increase of 1.7 million in the number of persons under age 65 in the U.S. population from 1984 to 1985.

A major reason for the increase in total YPLL is the greater number of deaths from the acquired immunodeficiency syndrome (AIDS). The YPLL due to AIDS increased from 82,885 in 1984 to 152,595 in 1985; this represented a rate increase of 82.4%.

Death due to AIDS became the 11th leading cause of YPLL in 1985; in 1984, it was the 13th leading cause. The relative rankings of the remaining 12 leading causes of YPLL did not change. Unintentional injuries, malignancies, and heart disease continue to be the three leading causes of YPLL in the United States.

The rate of YPLL/1,000 persons increased for seven of the 13 leading causes. As with total YPLL, the most notable rate increase was for AIDS. Other increases in the rate of YPLL occurred for diabetes (6.4%), chronic obstructive pulmonary disease (4.5%), pneumonia and influenza (2.5%), heart disease (1.5%), congenital anomalies (0.6), and diseases of the liver and cirrhosis (0.3%). Declines in the rate of YPLL were noted for prematurity (7.0%), cerebrovascular diseases (5.8%), unintentional injuries (4.2%), sudden infant death syndrome (1.9%), suicide and homicide (1.5%), and malignancies (0.3%) (Figure 1).

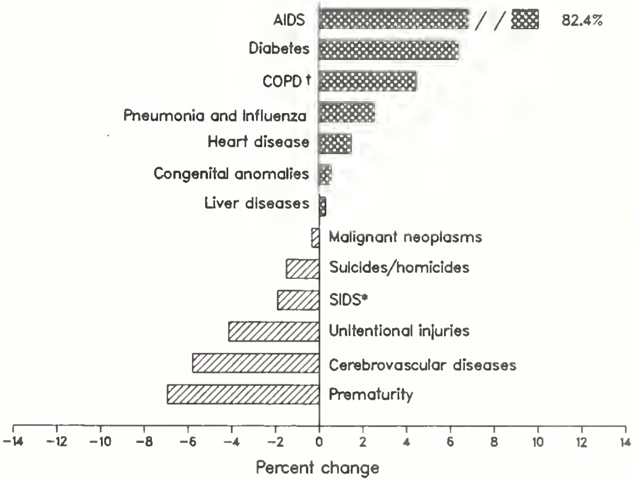


Figure 1

Percentage of change in rates of years of potential life lost before age 65—United States, 1984-1985

*Sudden infant death syndrome.
†Chronic obstructive pulmonary diseases.

Table V

ESTIMATED YEARS OF POTENTIAL LIFE LOST BEFORE AGE 65, 1984 AND 1985, AND CAUSE-SPECIFIC MORTALITY, 1985, BY CAUSE OF DEATH—UNITED STATES

Cause of Mortality (Ninth Revision ICD)	*YPLL for persons dying in 1984**	*YPLL for persons dying in 1985**	*Cause-specific mortality, 1985† (rate/100,000)*
ALL CAUSES (Total)	11,788,125	11,844,475	874.8
Unintentional injuries§ (E800-E949)	2,313,048	2,235,064	38.6
Malignant neoplasms (140-208)	1,804,809	1,813,245	191.7
Diseases of the heart (390-398, 402, 404-429)	1,564,522	1,600,265	325.0
Suicide and homicide (E950-E978)	1,250,642	1,241,688	20.1
Congenital anomalies (740-759)	685,315	694,715	5.5
Prematurity¶ (765, 769)	474,290	444,931	2.9
Sudden infant death syndrome (798)	316,909	313,386	2.0
Cerebrovascular diseases (430-438)	266,486	253,044	64.0
Chronic liver diseases and cirrhosis (571)	233,099	235,629	11.2
Pneumonia and influenza (480-487)	163,474	168,949	27.9
Acquired immunodeficiency syndrome (AIDS)**	82,885	152,595	2.3
Chronic obstructive pulmonary diseases (490-496)	123,275	129,815	31.2
Diabetes mellitus (250)	119,555	128,229	16.2

*For details of calculation, see MMWR Supplement, Premature Mortality in the United States, December 19, 1986, Vol. 35, No. 2S. Cause-specific mortality rates were obtained from the National Center for Health Statistics, Monthly Vital Statistics Report (MVSR), Vol. 34, No. 13, September 19, 1986. Age-specific population estimates for 1984 and 1985 were obtained from the Bureau of the Census, Estimates of the Population of the United States by Age, Sex, and Race: 1980 to 1985, Series P-25, No. 985.

†Cause-specific mortality rates as reported in the MVSR are compiled from a 10% sample of all deaths.

§Equivalent to accidents and adverse effects.

¶Category derived from disorders relating to short gestation and respiratory distress syndrome.

**Reflects CDC AIDS surveillance data.

Primary Physicians and M.D. Health Plan

KENNETH M. ROBBINS, M.D., F.A.A.P.

I have been asked by the MD Health Plan to describe to primary care physicians why participation in the plan is important and in their best interests. As a practicing pediatrician I feel able to do this. A number of my colleagues in family practice, internal medicine, obstetrics and gynecology, and pediatrics are of the same mind, and have signed this article, indicating their agreement.

The statement I hear repeatedly from my pediatrician colleagues is that they will have to see a prohibitive number of patients before they will every recoup their $3000 investment, in distinction to the specialists, particularly the surgical specialists, who can recoup it with one operation. I think if we, all the doctors in the state, look on the $3000 contribution as buying a patient load, we are falling into the trap that all the other HMO's have always used in dealing with us. Join us, they say, so that you will not lose your patients to the doctor down the street who will join us. Join us, they say, and all the patients who will be rushing to join our plan in your area will be yours. And we join to protect our market share. This is NOT the reason to join MDHP. The $3000 you invest in MDHP is your investment in securing, not patients, but some measure of control and direction over how you practice medicine and how you interact with your patients and with other health professionals, a control and direction that none of the other HMO's can or will promise you. Will you be practicing as you did ten years ago? Of course not. None of us will ever practice quite that way again. But the MDHP offers you the best, and probably the only, chance to try at least to affect the forces impinging on medicine. That is what the $3000 investment is buying. And in the last analysis is not that what is most important?

Why should a primary-care physician join MDHP? After all, I am told, other plans offer a gatekeeper. Suddenly the primary-care physician has an additional source of income. And control! Without a gatekeeper, it is argued, many patients will go directly to the specialists, bypassing the primary-care physician. In actuality, no greater number of patients will do this in the MDHP than now do it under fee-for-service. In fact, with the efforts of the staff to encourage enrollees to select and use primary-care physicians, it is likely that fewer patients will bypass their primary-care doctor. And aside from the fact that no one has ever proven that the gatekeeper saves one penny in medical expenses nor results in any better quality of care, the concept clearly violates one of the basic tenets of this organization: as much as possible we will retain those traditional and successful methods of medical care delivery that have worked throughout the years.

Why should a primary-care physician join MDHP? Why should someone who earns less on the income scale of physicians pay $3000 when a highly-paid specialist also pays the same $3000? Because the primary-care physician will receive back the greatest return from the HMO for his investment.

In a recent *Medical Economics* article dealing with HMO's it was stated that the physicians receiving the greatest return from HMO's, both in absolute dollars and as a percentage of gross, were pediatricians and family practitioners, followed closely by general practitioners and obstetricians.

If we doctors could abolish HMO's and return to the methods of practice that we have used so well for our patients and ourselves over the years we certainly would do so. But HMO's and other such organizations are here to stay. By not joining an HMO we are not preserving our fee-for-service patients. The patients will be enrolled in HMO's anyway because their employers want them to be. If we must live with HMO's, and we must, at least let us live with the only one that is owned, controlled, and directed solely by physicians, and the only one dedicated to the principles of the preservation of traditional physician-patient relationships—that is, the M.D. Health Plan.

Kenneth M. Robbins, M.D.
Pediatrics, Middletown

Stephen J. Leach, M.D.
Internal Medicine, Windham

Marvin I. Fox, M.D.
Internal Medicine, New Haven

S. H. Aleali, M.D.
Internal Medicine, Bridgeport

Stephen M. Upham, M.D.
Family Practice, Danielson

George A. Bonner, M.D.
OB-GYN, New Haven

Elsa L. Stone, M.D.
Pediatrics, North Haven

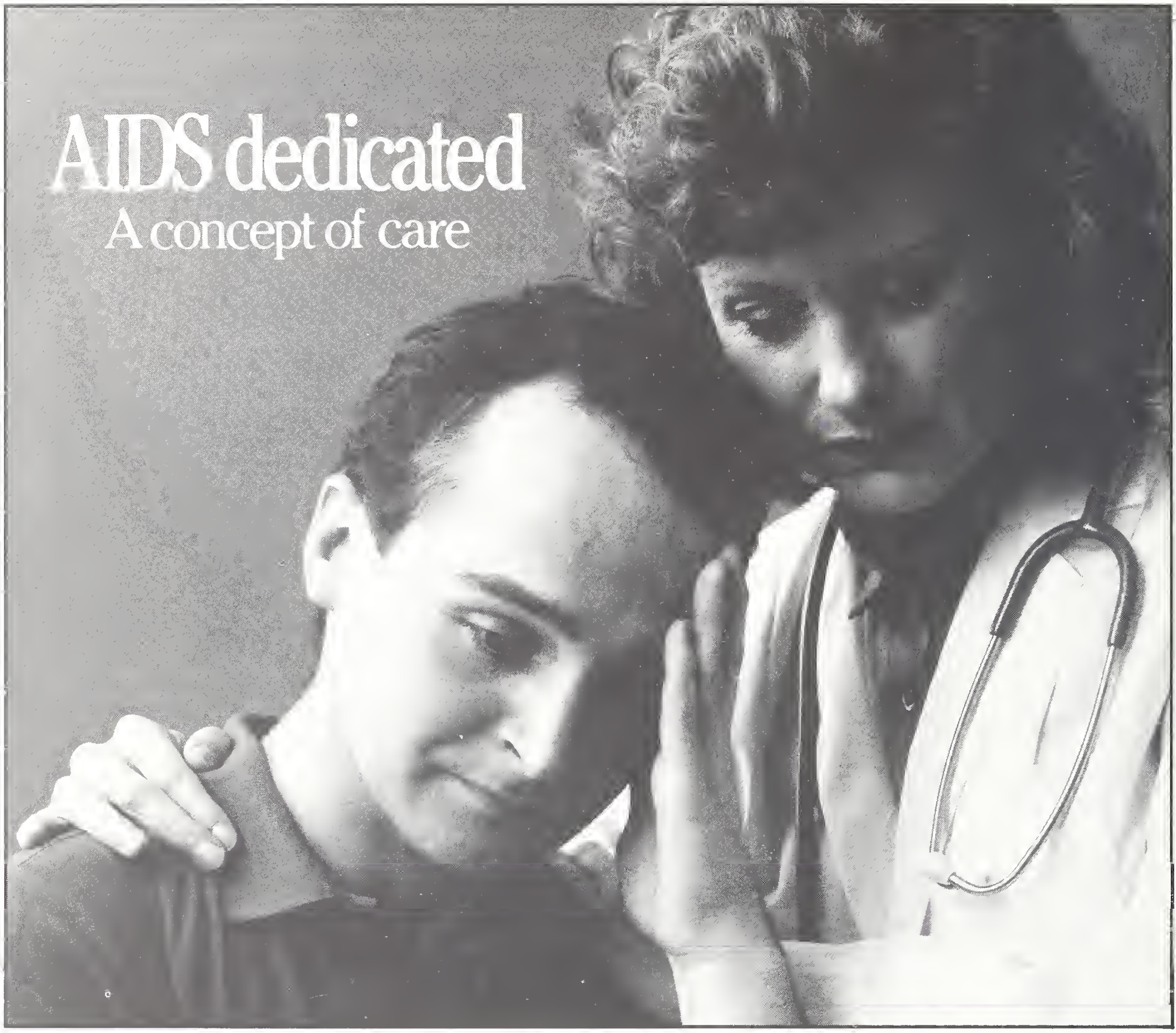
Joseph C. Czarsty, M.D.
Family Practice, Oakville

James P. Orphanos, M.D.
Family Practice, Greenwich

Stewart J. Petrie, M.D.
Obstetrics and Gynecology, Derby

(This material is not to be used in connection with the offering of shares of M.D. Health Plan unless accompanied or preceded by a current prospectus.)

KENNETH M. ROBBINS, M.D., F.A.A.P., is in the private practice of pediatrics in Middletown. He is also a Director on the initial Boards of CSMS-IPA, Inc. and of M. D. Health Plan, Inc., and serves as Chairman of the Subcommittee on Bylaws of the CSMS IPA-HMO Steering Committee. Dr. Robbins is also Associate Councilor for Middlesex County on the CSMS Council.



Photography by Ken Nahoum

AIDS is a complex disease, assaulting the psyche as well as the body. The Spellman Center for the Treatment of Persons With AIDS treats both. A comprehensive medical facility, Spellman is devoted to the care of those suffering from Acquired Immune Deficiency Syndrome.

Respect for individual dignity guides the Spellman program. Staffed by trained personnel dedicated to working with AIDS patients, the Center includes family and friends in the management of the patient's health crisis. Spellman also operates a 24-hour information hotline at 1-800-433-AIDS.

For criteria on admission and referrals, please contact the Medical Director, at 1-212-307-0735. Spellman is a division of St. Clare's Hospital and Health Center, designated the first AIDS treatment center by New York State.

The Spellman Center
for the Treatment of Persons With AIDS
St. Clare's Hospital and Health Center

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

Medical experts,
providers of care

Medical Societies, Peer Review, and CSMS-IPA

ROBERT J. BRUNELL, M.A.

For nearly 200 years, the Connecticut State Medical Society has been the voice and the focal point in our state for the men and women who inhabit the ever-changing world of medicine. Having withstood the test of time, the Society is now serving physicians and their patients more vigorously than ever, and most recently by launching Connecticut's first statewide IPA and prepaid health plan.

Why Medical Societies?

Over the years medicine has changed, and the Society has faced new issues never dreamed of by your forebears, but one thing has never changed, and that is the perennial necessity to foster and preserve the independence and freedom of physicians to render to each and every patient the best care possible. In 1792, the legislators of Connecticut saw fit to grant to physicians a charter enabling them to make such a benefit available in every corner of the state through their own self-regulation and continuing education.

Now, nearly 200 years later, physicians still have this responsibility, and the professionalism it implies is demonstrated every time a patient is treated, every time a colleague's credentials or treatment is reviewed by his or her peers, every time a CME program is planned or attended, and every time the physicians of the state and of its several counties claim their ancient heritage to gather together, to speak with one voice, and to take concerted action on behalf of their profession and of their patients.

Membership and participation in medical societies is the key to preserving the integrity and independence of physicians for their professional descendents centuries hence. This is the way physicians perpetuate the legacy that gives devoted practitioners a meaningful life well spent in learning and service.

Peer Review

At the heart of the medical profession's independence and integrity lies its willingness to police its own ranks through the peer review process, carried out in hospital staffs, county associations, and the state society. With CSMS-sponsored legislative improvements in recent years, medical peer review has been surrounded with the confidentiality and legal immunity so necessary to its vigorous and frank inquiries into the quality and circumstances of the medical care offered to patients. CSMS has been particularly active in the area of malpractice insurability and claims review, as well as the review of reimbursement policies of third party payers for specific medical procedures.

It is unthinkable that physicians as a group should not exercise rightful leadership in the areas of their own expertise and training. And yet we have seen forces within business and government which, if not effectively countered, would dictate the circumstances of medical practice, and even ration the amount and type of medical care available to patients. The continuing vigor and effectiveness of medicine's peer review activities is a strong bulwark against unwarranted governmental or corporate intrusion into the practice of medicine.

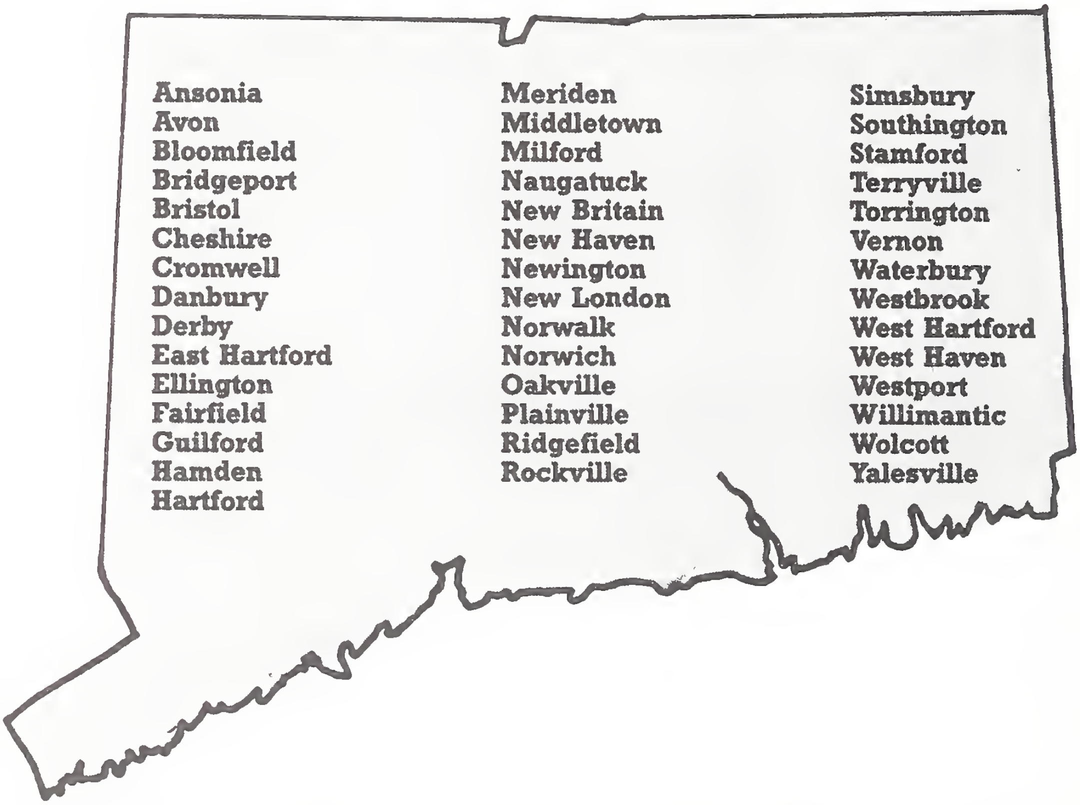
CSMS-IPA, Inc.

It is this medical independence and integrity that will give credibility and effectiveness to the peer review activities of your CSMS-IPA, a separate but wholly owned subsidiary of the Connecticut State Medical Society, with an all-physician Board of Directors. CSMS-IPA's contracted peer review services will assure that M.D. Health Plan maintains the very special identity represented by its first name: *M.D.*

In the coming months, CSMS-IPA will be organizing its county chapters and peer review panels. The majority of the IPA Board will be elected by these chapters, and the panels will be source for specialty input to the IPA's Quality Assurance and Utilization Review Committee and Credentialing Committee. Broad and active participation at the county and specialty level by member physicians will assure that the profession's heritage of quality and integrity is carried out in our state's prepaid patient care setting of the coming decade, via M.D. Health Plan, Inc.

ROBERT J. BRUNELL of New Haven, currently on leave from the CSMS Executive Staff, is presently Executive Secretary of CSMS-IPA, Inc., and Vice President for Professional Relations of M. D. Health Plan, Inc.

Health care providers throughout Connecticut are discovering the ProMed™ difference:



Ansonia
Avon
Bloomfield
Bridgeport
Bristol
Cheshire
Cromwell
Danbury
Derby
East Hartford
Ellington
Fairfield
Guilford
Hamden
Hartford
Meriden
Middletown
Milford
Naugatuck
New Britain
New Haven
Newington
New London
Norwalk
Norwich
Oakville
Plainville
Ridgefield
Rockville
Simsbury
Southington
Stamford
Terryville
Torrington
Vernon
Waterbury
Westbrook
West Hartford
West Haven
Westport
Willimantic
Wolcott
Yalesville

Medical practice management systems featuring savings (including 6.5% fixed rate financing), true electronic claim transmission and complete training, service and support.

Call Bob Seekamp, Director of Marketing at 1-800-922-3385

IBM
Authorized Dealer
Advanced Products

ProMed
SYSTEMS INCORPORATED

221 Whitney Avenue
New Haven, CT 06511

A subsidiary of:
Blue Cross
Blue Shield
of Connecticut

Elder Abuse and Neglect

AMA COUNCIL ON SCIENTIFIC AFFAIRS

Estimates of elder abuse approximate 10% of Americans over 65 years of age; obtaining accurate incidence and prevalence figures is complicated by factors including denial by both the victim and perpetrator and minimization of complaints by health professionals. Broad agreement exists in categorizing elder abuse as physical, psychological, and financial and/or material, despite lack of uniformity in definitions. Systematic scientific investigation provides limited knowledge about the causes of elder abuse. Most experts, however, believe that family problems and conflict are a major precipitating factor. Preliminary hypotheses for elder abuse include dependency, lack of close family ties, family violence, lack of financial resources, psychopathology in the abuser, lack of community support, and certain factors that may precipitate abuse in institutional settings. This report presents potential indicators of physical and psychological abuse, along with classification of elderly individuals at high risk, to assist the health professional in identification and prevention of elder abuse.

Resolution 112 (I-85, adopted) urges the American Medical Association to study and report on diagnostic and treatment guidelines concerning elder abuse and neglect and to develop model legislation for mandatory reporting by physicians of elder abuse.

The AMA has drafted and distributed to state medical associations model state legislation requiring mandatory physician reporting of cases of elder abuse.

Resolution 112 reflects the Association's long-standing commitment to preserve the dignity of the individual, most recently evidenced by its major initiative regarding child abuse and neglect. The resolution asks that *AMA Diagnostic and Treatment Guidelines Concerning Child Abuse and Neglect,* a report of the Council on Scientific Affairs (Report I, 1984 Interim Meeting, adopted), be used as a model in developing the elder abuse guidelines.

Only recently has attention been focused on abuse of the elderly as a major national concern. In a 1981 report, the US House of Representatives Select Committee on Aging called elder abuse "alien to the American ideal." Even the abused elderly were ashamed to admit that their children and others entrusted with their care had mistreated them. For this reason, the report stated, "the abuse of our elderly at the hands of their children until recent times has remained a shameful and hidden problem."[1]

Historical/Sociological Perspective

Abuse and neglect of the elderly in the western world tends to be regarded as a relatively recent phenomenon. However, historians, sociologists, and other scientists confirm that the view of yesterday's family as a harmonious multigenerational unit that relied on mutual generosity and sympathy and was characterized by veneration of elders is largely a myth.

In preindustrial European agricultural settings, peasants commonly arranged through annuity contracts for the retention of certain property rights on the transfer of their assets to the next generation. Such legal documents often contained references to the right of the elder parent to continue to sit at the family table or to use the front door of the house.[2]

A somewhat different picture emerges from the world of crafts and trades. In this sector, the elderly commanded a certain degree of respect, but only insofar as they were able to contribute by passing on their knowledge to their sons. Even aging craftsmen and merchants strove for regulations regarding their very old age that would not impose their care and maintenance on their children. The fact that these individuals insisted on such written guarantees and regulations is testimony to their suspicion that their children might not accord them certain rights based merely on feelings of benevolence or veneration.[2]

From the Council on Scientific Affairs, American Medical Association, Chicago.

Report J of the Council on Scientific Affairs, adopted by the House of Delegates of the American Medical Association at the Annual Meeting, June 15 through 19, 1986.

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of the facts and circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and patterns of practice evolve. This report reflects the views of the scientific literature as of June 1986.

Reprint requests to Council on Scientific Affairs, American Medical Association, 535 N Dearborn St, Chicago, IL 60610 (William R. Hendee, PhD).

In England before the year 1800, eighty percent of all persons 60 years of age and older were heading their own households. The tendency to preserve independence to the greatest degree possible was very strong, and the multigenerational household was not the usual expedient for the support of the aged.[3]

Industrialization, the effects of which were felt mainly by the urban working classes, cemented the separation between home and workplace. Although the family survived socially as a cooperative system, family economy came to depend on new and extended forms of production based increasingly on out-of-home occupational endeavors, effecting a decrease in the importance of traditional age roles.[2]

More recently, age-typifying social processes have militated against family unity and contributed to the distinction between life phases. Only within the past century has childhood been acknowledged as a separate life phase and accepted for its own value. Similarly for the aged, later life has become more distinctive as a special period. Compulsory retirement at a specified age, for example, has created a population of economically superfluous individuals. Federal programs that address special age-related needs (e.g., Social Security, Medicare) have further strengthened the concept of distinct life phases.[2]

The formerly long and largely uncontrolled phase of procreation has shortened considerably in recent decades, leading to a prolongation of the "empty next syndrome" (i.e., the period extending from the time the last child leaves home until the death of one of the marriage partners). Simultaneously, largely as a result of modern medical technology, life expectancy has increased dramatically and old age has become accessible to more and more individuals, resulting in protracted periods of time during which the elderly are susceptible to physical pain and psychological deprivation. Finally, activity quotients concerning sociopsychological relations between the generations are changing, as the energies and emotions of younger adults are more occupied with concerns about their own life content than with obligations to and relations with older parents and grandparents.[2]

Definition/Classification

Although definitions and classifications of elder abuse lack uniformity, Table 1 demonstrates broad agreement in categorization of such abuse as physical (in one third of published studies, this includes sexual abuse), psychological, and financial and/or material. Less often is medical abuse or self-neglect indicated as a separate category. The explicit desire in most cases is to focus on the resolution of unmet needs, regardless of causal mechanisms.

Limitation of the concept of neglect to neglectful actions of caretakers is encouraged. Statutes addressing the phenomenon of self-neglect typically caution that "older persons are not children. Unless declared incompetent, they are responsible for themselves."[4]

Table 1
PUBLSIHED CLASSIFICATIONS OF ELDER ABUSE

	US Congress,[10] *1985*	*Kimsey et al,*[22] *1981*	*Clark,*[9] *1984*	*O'Malley et al,*[13] *1983*	*Ghent et al,*[23] *1985*	*Washington State Medical Assoc.,*[27] *1985*	*Hickey and Douglass,*[21] *1981*	*Fulmer and Cahill,*[25] *1984*	*Pearson,*[29] *1986*
Abuse									
Physical (active and Passive)	x	x	x*	x†	x	x*	x*	x	x
Psychological	x	x	x	. . .	x‡	x	x§	x	x
Sexual	x	x	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Exploitation									
Financial	x	x	x	. . .	x	x	. . .	. . .	. . .
Material	. . .	x	x	. . .	. . .	. . .	. . .	x	x
Neglect									
Active (physical)	x	x	x	x	. . .	x	x	. . .	x
Passive (psychological)	. . .	. . .	. . .	. . .	x	. . .	. . .	x	. . .
Self-neglect	x	. . .	. . .	. . .	. . .	. . .	. . .	. . .	x
Violation of rights	x	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Medical	. . .	. . .	. . .	. . .	x	. . .	x	. . .	. . .

* Includes sexual abuse.
† Includes physical, psychological, and financial abuse.
‡ Includes psychosocial abuse.
§ Includes verbal/emotional abuse.

In mild to moderate hypertension Brief Summary

THE FIRST ONCE DAILY CALCIUM CHANNEL BLOCKER

ISOPTIN® SR
(verapamil HCl/Knoll)
240 mg scored, sustained-release tablets

CONTRAINDICATIONS: 1) Severe left ventricular dysfunction (see WARNINGS), 2) Hypotension (less than 90 mmHg systolic pressure) or cardiogenic shock, 3) Sick sinus syndrome or 2nd or 3rd degree AV block (except in patients with a functioning artificial ventricular pacemaker).

WARNINGS: **Heart Failure**: ISOPTIN should be avoided in patients with severe left ventricular dysfunction (see DRUG INTERACTIONS). Patients with milder ventricular dysfunction should, if possible, be controlled before verapamil treatment. Hypotension: ISOPTIN (verapamil HCl) may produce occasional symptomatic hypotension. Elevated Liver Enzymes: Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Periodic monitoring of liver function in patients receiving verapamil is therefore prudent. Accessory Bypass Tract (Wolff-Parkinson-White): Patients with paroxysmal and/or chronic atrial flutter or atrial fibrillation and a coexisting accessory AV pathway have developed increased antegrade conduction across the accessory pathway producing a very rapid ventricular response or ventricular fibrillation after receiving intravenous verapamil. While this has not been reported with oral verapamil, it should be considered a potential risk. Treatment is usually D.C.-cardioversion. Atrioventricular Block: The effect of verapamil on AV conduction and the SA node may cause asymptomatic 1st degree AV block and transient bradycardia. Higher degrees of AV block, while infrequent (0.8%), may require a reduction in dosage or, in rare instances, discontinuation of verapamil HCl. Patients with Hypertrophic Cardiomyopathy (IHSS): Although verapamil has been used in the therapy of patients with IHSS, severe cardiovascular decompensation and death have been noted in this patient population.

PRECAUTIONS: **Impaired Hepatic or Renal Function:** Verapamil is highly metabolized by the liver with about 70% of an administered dose excreted in the urine. In patients with impaired hepatic or renal function verapamil should be administered cautiously and the patients monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacological effects (see OVERDOSAGE).

Drug Interactions: Beta Blockers: Concomitant use of ISOPTIN and oral beta-adrenergic blocking agents may be beneficial in certain patients with chronic stable angina or hypertension, but available information is not sufficient to predict with confidence the effects of concurrent treatment in patients with left ventricular dysfunction or cardiac conduction abnormalities. Digitalis: Clinical use of verapamil in digitalized patients has shown the combination to be well tolerated if digoxin doses are properly adjusted. However, chronic verapamil treatment increases serum digoxin levels by 50 to 75% during the first week of therapy and this can result in digitalis toxicity. Upon discontinuation of ISOPTIN (verapamil HCl), the patient should be reassessed to avoid underdigitalization. Antihypertensive Agents: Verapamil administered concomitantly with oral antihypertensive agents (e.g., vasodilators, angiotensin-converting enzyme inhibitors, diuretics, beta blockers, prazosin) will usually have an additive effect on lowering blood pressure. Patients receiving these combinations should be appropriately monitored. Disopyramide: Disopyramide should not be administered within 48 hours before or 24 hours after verapamil administration. Quinidine: In patients with hypertrophic cardiomyopathy (IHSS), concomitant use of verapamil and quinidine resulted in significant hypotension. There has been a report of increased quinidine levels during verapamil therapy. Nitrates: The pharmacologic profile of verapamil and nitrates as well as clinical experience suggest beneficial interactions. Cimetidine: Two clinical trials have shown a lack of significant verapamil interaction with cimetidine. A third study showed cimetidine reduced verapamil clearance and increased elimination to 1/2. Anesthetic Agents: Verapamil may potentiate the activity of neuromuscular blocking agents and inhalation anesthetics. Carbamazepine: Verapamil may increase carbamazepine concentrations during combined therapy. Rifampin: Therapy with rifampin may markedly reduce oral verapamil bioavailability. Lithium: Verapamil may lower lithium levels in patient on chronic oral lithium therapy. Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no evidence of a carcinogenic potential of verapamil administered to rats for two years. Verapamil was not mutagenic in the Ames test. Studies in female rats did not show impaired fertility. Effects on male fertility have not been determined. Pregnancy (Category C): There are no adequate and well-controlled studies in pregnant women. ISOPTIN crosses the placental barrier and can be detected in umbilical vein blood at delivery. This drug should be used during pregnancy, labor, and delivery, only if clearly needed. Nursing Mothers: ISOPTIN is excreted in human milk, therefore, nursing should be discontinued while verapamil is administered Pediatric Use: Safety and efficacy of ISOPTIN in children below the age of 18 years have not been established.

ADVERSE REACTIONS: Constipation 8.4%, dizziness 3.5%, nausea 2.7%, hypotension 2.5%, edema 2.1%, headache 1.9%, CHF/pulmonary edema 1.8%, fatigue 1.7%, bradycardia 1.4%, 3° AV block 0.8%, flushing 0.1%, elevated liver enzymes (see WARNINGS). The following reactions, reported in less than 1.0% of patients, occurred under conditions (open trials, marketing experience) where a causal relationship is uncertain; they are mentioned to alert the physician to a possible relationship: angina pectoris, arthralgia and rash, AV block, blurred vision, cerebrovascular accident, chest pain, claudication, confusion, diarrhea, dry mouth, dyspnea, ecchymosis or bruising, equilibrium disorders, exanthema, gastrointestinal distress, gingival hyperplasia, gynecomastia, hair loss, hyperkeratosis, impotence, increased urination, insomnia, macules, muscle cramps, myocardial infarction, palpitations, paresthesia, psychotic symptoms, purpura (vasculitis), shakiness, somnolence, spotty menstruation, sweating, syncope, urticaria. Treatment of Acute Cardiovascular Adverse Reactions: Whenever severe hypotension or complete AV block occur following oral administration of verapamil, the appropriate emergency measures should be applied immediately, e.g., intravenously administered isoproterenol HCl, levarterenol bitartrate, atropine (all in the usual doses), or calcium gluconate (10% solution). If further support is necessary, inotropic agents (dopamine or dobutamine) may be administered. Actual treatment and dosage should depend on the severity and the clinical situation and the judgment and experience of the treating physician.

OVERDOSAGE: Treatment of overdosage should be supportive. Beta-adrenergic stimulation or parenteral administration of calcium solutions may increase calcium ion flux across the slow channel, and have been used effectively in treatment of deliberate overdosage with verapamil. Clinically significant hypotensive reactions or fixed high degree AV block should be treated with vasopressor agents or cardiac pacing, respectively. Asystole should be handled by the usual measures including cardiopulmonary resuscitation.

Knoll Pharmaceuticals
A Unit of BASF K&F Corporation
Whippany, New Jersey 07981

knoll®

BASF Group

©1986, BASF K&F Corporation 2474/11/86 Printed in U.S.A.

NEW YORK FERTILITY RESEARCH FOUNDATION, INC.

For the Investigation of Problems of Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

MONDAY TO FRIDAY
OCTOBER 5-9, 1987

FIVE DAY EMERGENCY MEDICINE BOARD REVIEW COURSE

NYU Medical Center
Post-Graduate Medical School

Bellevue Hospital Center
Emergency Services

An intensive, five-day course providing:

- a concentrated review and update of Emergency Medicine topics
- analysis of relevant articles from the past six years of Emergency Medicine literature
- interaction regarding clinical controversies in management techniques
- sessions in written test-taking, and oral problem solving in ED medicine
- group sessions to assist participants with Oral Board preparation
- review of sample multiple choice questions with emphasis on test taking techniques
- special opportunity for 1 on 1 sessions with Board certified faculty to be provided on an ongoing basis throughout the course

TUITION: $600
Accreditation: 36.5 AMA Category I credit hours

For further information: NYU Post-Graduate Medical School,
550 First Avenue, New York, N.Y. 10016 (212) 340-5295
(24-hour service)

CM5/87

According to the model bill known as the Elderly Abuse Reporting Act, prepared by the AMA Department of State Legislation:

> "Abuse" shall mean an act or omission which results in harm or threatened harm to the health or welfare of an elderly person. Abuse includes intentional infliction of physical or mental injury; sexual abuse; or withholding of necessary food, clothing, and medical care to meet the physical and mental health needs of an elderly person by one having the care, custody, or responsibility of an elderly person.[5]

Succinct guidelines that provide a practical listing of types of maltreatment (Table 2) have been published by the Washington State Medical Association.

Incidence and Prevalence

Abuse of the elderly is difficult to quantify because both the victim and perpetrator tend to deny it or downplay its seriousness. Often, the victim is overwhelmed by the abusive situation and either is embarrassed to acknowledge that he or she is being abused or does not know where to turn for help. Acceptance of the abuse and withdrawal from family and friends may follow.[6] In some families, a defensive posture is assumed and the problem is denied "to maintain family homeostasis."[7] Health professionals often minimize complaints of elder abuse because of disbelief, fear of accusing the perpetrator, or lack of awareness of the extent of the problem.

Results of studies that have examined the attitudes of medical students, physicians, and other helping professionals toward the aged have not been encouraging. In one study of first-year medical students, only 4% stated that they would prefer to treat elderly patients, while 48% stated a preference for working with younger patients. Interest in geriatric patients and geriatric medicine on the part of these students did not appear to be affected significantly by their knowledge of, attitudes toward, or personal contact with elderly persons.[8]

Deficiencies inherent in the identification of elder abuse victims notwithstanding, abuse of some type or combination of types has been estimated to occur in approximately 10% of Americans over 65 years of age,[9] and about 4% may be victims of moderate to severe abuse.[10] This means that one in every 25 elderly Americans (>1.1 million) may be victims of such abuse, representing an increase of approximately 100,000 abuse cases annually since 1981.[10]

If these estimates are accurate, elderly Americans are abused only slightly less commonly than children. Although one in three cases of child abuse is reported, this is true of only one in five cases of elder abuse. While the states spend an average of $22 per child for protective services, only $2.90 is spent for each elderly person. In fact, only 4.7% of the average state's budget is spent on protective services for the elderly (a drop of 2% since 1980), even though about 40% of all reported abuse cases involve adults and abused elders.[10]

Table 2

CLASSIFICATION OF TYPES OF ELDER ABUSE*

Physical or Sexual Abuse
- Bruises (bilateral and at different stages of healing)
- Welts
- Lacerations
- Punctures
- Fractures
- Evidence of excessive drugging
- Burns
- Physical constraints (tying to beds, etc)
- Malnutrition and/or dehydration
- Lack of personal care
- Inadequate heating
- Lack of food and water
- Unclean clothes or bedding
- Lack of needed medication
- Lack of eyeglasses, hearing aids, false teeth
- Difficulty in walking or sitting
- Venereal disease
- Pain or itching, bruises, or bleeding of external genitalia, vaginal area, or anal area

Psychological Abuse (vulnerable adults react by exhibiting resignation, fear, depression, mental confusion, anger, ambivalence, insomnia)
- Threats
- Insults
- Harassment
- Withholding of security and affection
- Harsh orders
- Refusal on the part of the family or those caring for the adult to allow travel, visits by friends or other family members, attendance at church

Exploitation
- Misuse of vulnerable adult's income or other financial resources (victim is best source of information, but in most cases has turned management of financial affairs over to another person; as a result, there may be some confusion about finances)

Medical Abuse
- Withholding or improper administration of medications or necessary medical treatments for a condition, or the withholding of aids the person would medically require such as false teeth, glasses, hearing aids
- May be a cause of
  - Confusion
  - Disorientation
  - Memory impairment
  - Agitation
  - Lethargy
  - Self-neglect

Neglect
- Conduct of vulnerable adult or others that results in deprivation of care necessary to maintain physical and mental health
- May be manifested by
  - Malnutrition
  - Poor personal hygiene
  - Any of the indicators for medical abuse

* From the Washington State Medical Association.[27]

Both a recent cross-sectional survey of a variety of professionals[11] and a two-year study by the University of Maryland Center on Aging, College Park,[12] found that passive neglect is the most common form of elder abuse. Emotional and verbal abuse and active neglect (e.g., abandonment, malicious withholding of required services, and financial exploitation) are less common, and violations of civil rights are rarely reported as long as care is perceived to be in the patient's best interest.

Research has indicated that rather than occurring as isolated incidents, abuse toward the elderly is frequent and recurring in up to 80% of cases.[13] The victim is typically a 75-year-old widow who has been forced to move in with a younger family member because her economic resources are insufficient to allow her to be independent.[6,12] Most victims also have at least one physical or mental impairment that necessitates care by others.[14] In fact, the elderly are known to have an average of 3.5 chronic diseases per person.[1] Elder abuse is found among all racial, ethnic, and socioeconomic backgrounds.[15]

The abuser is a relative in 86% of cases and lives with the elderly person in 75% of cases.[13] Approximately 50% of elder abusers are children or grandchildren of the victims, and about 40% are spouses. The average perpetrator has cared for the victim for 9.5 years; 10% have provided care for 20 years or more.[16] In over 60% of elder abuse case reports, the elderly person is a significant source of stress to the abuser. Physically apparent trauma is cited in over 50% of cases.[13]

Since estimates indicate that 60% to 80% of home care for the aged is provided by family members living in the same household, it follows that the family is the greatest source of elder abuse and neglect.[17] By contrast, only about 5% of the elderly population in the United States are cared for in institutions for the elderly.[18]

Etiology

Limited knowledge now exists from systematic, scientific investigation about the causes of elder abuse. The health care problems of the elderly, often more complex than those of other age groups, include physiological and metabolic changes, a higher incidence of disease, an increased prevalence of chronic illness, severe functional disability, and a higher incidence of multiple health problems.[19] The oldest of the elderly (those 85 years of age and older) are the fastest growing segment of the population. Furthermore, this cohort composes the frailest and most vulnerable group.[10]

In some instances of elder abuse, intentionality is evident. The following are examples from a recent report by the Subcommittee on Health and Longterm Care of the Select Committee on Aging, US House of Representatives:

- A 59-year-old woman less than 152 cm tall and weighing less than 45 kg was disabled by severe arthritis and other physical problems. On one occasion, her son hit her on the head with a board. On another, he picked her up and slammed her body into the ground.
- An elderly couple was persuaded to give a woman power of attorney over them in return for her moving into their home as their caregiver. In time, the couple was herded into a garage room while the woman lived in their home. Ultimately, they were sent to a nursing home. This woman stripped them of their home, car, and other assets, valued at $100,000.
- The son of a 65-year-old Calfifornia woman confiscated her benefit checks and discarded her medications for arthritis and pain. He repeatedly demanded sexual gratification from her and threatened to throw her into the street if she made his practices know.[10]

In other cases, intentionality is not so apparent. The problem is complex and probably has multiple overlapping explanations. Most experts, however, appear to believe that a major precipitating factor is family distress.[10]

The following preliminary hypotheses have been proposed for elder abuse:

Dependency.—Abusive behavior may be triggered by the dependency relationship. As the elderly person must rely to a greater extent on someone else to provide services that can be withheld or omitted for reasons beyond his/her control, vulnerability to abuse and neglect is enhanced.

Evolving changes in the delivery of health care have increased pressure for shorter hospital stays and may result in early discharges of elderly patients. It is important to consider whether early discharge adds to home caretaker stress and contributes to elder abuse since these patients may require extensive care at home and, therefore, be at high risk for abuse.

Although the dependency per se may not be the sole explanation for abuse and neglect by caretakers, it may serve as a trigger by creating stress on the caretaker with maladaptive or inadequate coping mechanisms.[13] On conceptual and practical levels, dependency is closely linked to vulnerability.

Lack of Close Family Ties.—Failure to develop a strong relationship with the parent during childhood has been proposed to result in inappropriate responses to stress by the child, thus creating the potential for abuse and neglect.[20] In the absence of a close relationship between adult children and their parents, a dependent elderly parent can precipitate stress and frustration without the love and friendship necessary to counteract the new responsibilities of adult children. If the elderly parent has lived independently for a significant part of his or her life, the reunion with offspring might be viewed by the children as an intrusion, and abuse may follow.[10]

Family Violence.—Violence is a normal reaction to stress in some families, and it may continue from generation to generation.[6] The caretaker may have been abused as a child in an environment in which violence and neglect were the normal modes of behavior.[9] Thus, elder abuse may be a cyclic phenomenon, with parents and children mistreating each other throughout their lifetimes. Research is consistent in showing that abusive adults were victims of such behavior as children.[21]

Violence also may be precipitated by the unrelenting responsibility imposed on some caretakers. Many elderly persons, although probably a minority, become more difficult to care for as they age. They may be stubborn, untidy, and argumentative and may lose the higher-order psychological defense mechanisms acquired in earlier developmental stages. Some may become aggressive and even combative. Exhausted by the elderly person's progressive deterioration and seemingly insatiable demands, and overwhelmed by what appears to be a situation from which there is no escape, the caretaker may resort to violent behavior.[14]

Lack of Financial Resources. —With the demise of the extended family, many adult children find it difficult to care for aging parents. More middle-aged women, traditionally the principal providers of care to elderly parents, are seeking employment outside the home. And competent in-home help, when available, is very expensive.[22] When pressures mount on financial resources, as the need for potential caregivers to enter the work force intersects with the trend of an increasing older population in need of care, a view of the elderly parent as an economic burden may result, accompanied by a dramatic rise in the incidence and prevalence of elder abuse.

Although poverty or reduced finances may be a factor in family-mediated abuse of the elderly, it is not a sufficient cause, since elder abuse exists at all socioeconomic levels.[15]

Psychopathology in the Abuser. —Flawed psychological development of the adult caretaker has been suggested as the underlying or primary cause of mistreatment of the elderly, with the environmental contexts and situational problems providing the triggers or immediate causes of the acts of neglect and abuse.[21] Studies have shown that the person most likely to be cast in the role of primary caregiver for an elderly relative is often the least socially integrated adult child in the family (e.g., one who is unmarried and unemployed).[14] Often, these individuals are beset with problems of their own, independent of the stressors placed on them by their elderly charges. In 63% of the cases of physical abuse studied by Hickey and Douglass,[11] the abuser was suffering from alcoholism, drug addiction, or psychosocial stress at the time of the abusive act.

Lack of Community Support. —Community resourses generally are less available to the elderly person who is cared for by the family than to the isolated individual in the community. Lack of facilities to provide additional care for the elderly contributes to frustration and burnout in the caretaker and, thus, to the potential for abuse.[23]

Institutional Factors. —Primary attention has been directed to abuse from informal caretakers, since most of the disabled elderly rely on these individuals to meet their physical and personal needs. However, elder abuse also occurs in institutional settings (e.g., nursing homes). Although many hypotheses proposed for abuse of the elderly by informal caretakers apply equally to formal caretakers, additional stressors may be operative in these settings.

Some observers have attributed abuse in the form of neglect in institutional settings primarily to low pay, poor working conditions, long hours, and the interference of paperwork and red tape with efficient care.[22] Abuse may occur for economic reasons as well. To cut costs, some institutions may provide food in lesser quantity and of poorer nutritional value, thus further diminishing the residents' quality of life. Additionally, medications designated for elderly patients may be misappropriated by employees for personal use or street sale.[22]

When to these factors is added the often pessimistic attitudes of formal caretakers that their patients will continue to deteriorate and die despite all efforts to the contrary, the result frequently is a callousness in which denial is employed as the chief psychological defense against a situation perceived as hopeless.[22]

Risk Assessment

The detection and assessment of elder abuse can be difficult. First, it is unlikely that abused elderly individuals would report acts of aggression against them by members of their families or by other caretakers on whom they rely for their basic needs. Second, to make an assessment, the physician and/or other health professional would have to gain access to the patient's home.

Although there is insufficient information to construct a clinical profile of the abuser, some observational guidelines have been developed that focus on the interaction between the elderly individual and the perpetrator in a home situation. A case detection approach may be helpful in identifying potential indicators of physical and behavioral abuse.[24]

Physical indicators have been described as "observable conditions of the aged person that range from signs of physical neglect to obvious physical injury"[24] (Table 2). The absence of assisting behaviors on the part of the caretaker, especially when verified by neighbors and/or relatives, also is indicative of abuse.

Certain types of behavior in elderly individuals provide information on the relationship with their caretakers. For example, excessive fear in the presence of adult children may indicate an abusive situation.[24] In assessing evidence of psychological abuse, one must keep in mind that what appears to be an angry, abusive exchange between the elderly individual and the caretaker may reflect a lifelong pattern of communication. In such instances, it would be necessary to verify one's suspicions with others who have known the individuals over a period of time.[25]

Elderly individuals at high risk for family-mediated abuse or neglect have been classified as those

- who live at home and whose needs exceed or soon will exceed their families' ability to meet them;
- whose primary caretakers are expressing frustration in dealing with care needs;
- whose primary caretakers are demonstrating signs of stress;
- who live in families with a norm of family violence;

- who abuse drugs or alcohol or live with family members who abuse drugs or alcohol or have episodes of loss of control;
- whose primary caretakers are under severe external stress (e.g., loss of job, illness, or family problems).[13]

Assessment and recognition of these conditions may assist the health professional in identifying the potential for elder abuse. Additional factors to consider may include sudden deterioration of the elder's condition, coupled with caregiving of long duration or lack of assistance (financial and other types) from other family members or friends.[14]

The need exists for a concise, empirical assessment instrument that targets potential victims of elder abuse.[25] The fact that elderly persons most vulnerable to abuse and neglect usually have serious medical problems may serve as the basis for an ongoing assessment by medical personnel. Nurses appear to have gained access most successfully because of the reputation they have established as helping professionals.[13]

Barriers to Identification and Prevention of Elder Abuse

Paramount among the diffuculties in addressing abuse and neglect of the elderly in the United States is the unwillingness of both those affected and of society in general to acknowledge that something so "alien to the American ideal" even exists. Many barriers thus represent gaps in knowledge: lack of information on the actual incidence and prevalence or number of persons affected; minimal systematic, scientific data on the causes of abuse in the elderly; no established procedures for case detection; insufficient knowledge about identifying and meeting the needs of elderly persons; incomplete data on either the potential victims of elder abuse or the likely perpetrators thereof; lack of empirical data on efficacy of psychosocial treatments and/or evaluation of intervention strategies; and difficulty in comparing outcomes of intervention activities among patient groups.

Further complicating the identification and prevention of elder abuse are existing societal norms: ageism or unfavorable attitudes toward older persons; disagreement on definitions of elder abuse; insufficient attention to the stresses inherent in caring for the chronically ill; poor delineation of appropriate family interactions to distinguish family violence from pathological elderly maltreatment; and perpetuation of the myth that, traditionally, families have been harmonious units that relied on mutual generosity and veneration of elders.

Additional factors that pose significant barriers to the reduction and elimination of elder abuse involve protection of individual rights of self-determination, privacy, and due process for both the abused and the abuser; inadequate societal resources to respond to identified cases of elder abuse and to deal with the abuser(s); wide variations among state statutes involved in identification and reporting of elder abuse; insubstantial and inconsistent local, state, and national empirical evidence; weak or nonexistent surveillance and enforcement efforts; lack of availability or coordination of services; risks of liability; lack of sound standards for state intervention; concerns about violating patient-clinic confidentiality; and, most difficult of all, an inability to determine the best ways to locate and identify the abused so as to intervene in a timely and effective way.

Concerted efforts to recognize these knowledge gaps and to acknowledge these defective societal norms and responses, to obtain the required information and to correct the inappropriate societal behaviors, should provide constructive assistance toward the prevention of elder abuse.

Intervention and Prevention

Elder abuse is a complex problem with dynamic and variable origins. While the preferred intervention is primary prevention, the current state of knowledge is not sufficient to make this an effective approach. Empirical data clarifying theories of causation must first be accumulated.

No one person or profession should be solely responsible for the management of these cases. Therefore, a multidisciplinary team of caretakers from the medical, social service, mental health, and legal professions should be utilized whenever possible. A multidisciplinary team is, by definition, a group of professionals and paraprofessionals from a variety of disciplines, often representing different agencies, working together to achieve a clearly specified set of goals. These goals may include coordination, diagnosis or identification, prevention, treatment, consultation, and education.

Multidisciplinary teams can be hospital, agency, or community based. To ensure adequate professional communication among team members and guarantee continuity of care for the patient, the multidisciplinary team must have a case manager. Any member can be selected to function in that capacity.

A typical team may be composed of a primary care physician, a nurse, a social worker, a psychiatrist, a psychologist, an attorney, a police officer, and a case data coordinator.[26] Although the composition of multidisciplinary teams may vary due to local resources, intervention programs should have access to homemakers/home health aides, visiting nurses, Meals-on-Wheels, transportation, emergency shelter, and legal aid, as well as medical and mental health services.[13]

The division of elder maltreatment cases into two broad categories, those elders dependent on caregivers and those not dependent on caregivers, may be useful for intervention purposes. In the case of an elderly person who is impaired and dependent on an abusive caregiver, the following interventions (which are not necessarily mutually exclusive) may be employed:

- provide in-house support services designed to maximize quality of care for the patient and minimize stress for the caregiver;

- provide respite care for the elder at regular intervals;
- provide supportive counseling and/or individual psychotherapy for the caregiver;
- explore permanent alternative living arrangements (e.g., other family members, foster care, congregate living, or nursing home).[13]

In the case of an elderly person who is maltreated but not dependent on a caregiver, the following interventions (which are not necessarily mutually exclusive) may be employed:

- initiate legal action against the perpetrator (e.g., obtain a peace bond or an order to vacate premises);
- provide in-home support services to the family to minimize opportunities for abuse;
- explore alternative living arrangements;
- provide necessary psychosocial interventions for the abuser (e.g., individual psychotherapy, supportive counseling, and job training).

In all cases, intervention should promote the least restrictive alternative to ongoing maltreatment while respecting the personal rights of the elderly individual.[27] Before residential placement occurs, the following should be considered:

- what the patient wants;
- whose needs are being served by residential placement;
- whether all other alternatives have been explored.[28]

Although the primary goal of intervention is to protect the elder from maltreatment, it also may be important to recognize the needs of the perpetrator. In some cases, the caregiver is still potentially the most nurturing source of long-term care for the elderly person.[14] Supportive counseling provided to the abusive caregiver should include

- education regarding the etiology of elder abuse;
- assistance in clarifying and meeting personal needs;
- assistance in responding to any behavioral problems of the elderly person;
- assistance in maximizing the elderly person's abilities.

The first step in preventing elder abuse and neglect is to increase the levels of awareness and knowledge among physicians and other health professionals. Once high-risk individuals and families have been identified, physicians can participate in the primary prevention of maltreatment by making referrals to appropriate community and social service centers. Physicians may also participate by providing support and information on high-risk situations directly to patients.

Major management objectives for the physician involved in cases of elder abuse include the following:

- identify the elder who may have been abused and/or neglected;
- institute measures needed to prevent further injury;
- provide medical evaluation and treatment of injuries resulting from abuse and/or neglect;
- remain objective and nonjudgmental;
- attempt to establish or maintain a therapeutic alliance with the family (often the physician is the only professional who maintains long-term contact with the patient and family);
- report all suspected cases of elder abuse and/or neglect in accordance with local statutes.

Interventions that stabilize family-mediated abuse and neglect of elderly persons also may be effective in preventing maltreatment if applied prospectively. Physicians should encourage the development and utilization of supportive community resources that provide in-home services, respite care, and stress reduction within high-risk families.

Recommendations

The Council on Scientific Affairs recommends that:

- The AMA initiate the establishment of a multidisciplinary task force to develop approaches to intervention and prevention of elder abuse and to coordinate mutually supportive activities of various constituencies (e.g., American Association of Retired Persons, American Nurses Association, American Public Health Association, American Hospital Association).
- Diagnostic and treatment guidelines concerning elder abuse and neglect be developed from the information contained in this report.
- The AMA organize a programmatic effort to address the national concern of elder abuse through state medical societies.

REFERENCES

Elder Abuse: The Hidden Problem: Briefing by the Select Committee on Aging, U.S. House of Representatives, committee publication 1980, 96:220. US Congress.

2. Rosemayr L: Socio-cultural change in the relation of the family to its older members: Towards an integration of historical, sociological and psychiatric perspectives, in Tenth International Conference of Social Gerontology. Paris, International Center of Social Gerontology, 1984, 2:49-63.
3. Shanas E: Social myth as hypothesis: Case of the family relations of old people. Gerontologist 1979, 19:3-9.
4. Salend E, Kane RA, Satz M, et al: Elder abuse reporting: Limitations of statutes. Gerontologist 1984, 24:61-69.
5. Model Elderly Abuse Reporting Act. Chicago, American Medical Association, 1985.
6. Lau E, Kosberg JI: Abuse of the elderly by informal care providers. Aging 1979; (September/October) 299:10-15.
7. Miller MB, Bernstein H, Sharkey H: Denial of parental illness and maintenance of familial homeostasis. J Am Geriatr Soc 1978, 21:278-285.
8. Perrotta P, Perkins D, Schimpfhauser F, et al: Medical student attitudes toward geriatric medicine and patients. J Med Educ 1981, 56:478-483.
9. Clark CB: Geriatric abuse—out of the closet. J Tenn Med Assoc 1984, 77:470-471.
10. Elder Abuse: A National Disgrace: Report by the Subcommittee on Health and Long-term Care of the Select Committee on Aging, U.S. House of Representatives, committee publication 99-502. US Congress, 1985.

11. Hickey T, Douglas RL: Mistreatment of the elderly in the domestic setting: Exploratory study. Am J Public Health 1981A; 71:500-507.
12. Block MR, Sinnott JD (eds): The Battered Elder Syndrome: Exploratory Study. College Park, Md, Center on Aging, University of Maryland, 1979.
13. O'Malley TA, Everitt DE, O'Malley HC, et al: Identifying and preventing family-mediated abuse and neglect of elderly persons. Ann Intern Med 1983, 98:998-1005.
14. Taler G, Ansello EF: Elder abuse. Am Fam Physician 1985, 32:107-114.
15. Steuer J, Austin E: Family abuse of the elderly. J Am Geriatr Soc 1980, 28:372-376.
16. Streib G: Older families and their troubles: Familial and social responses. Fam Coordinator 1972, 21:5-19.
17. Report W of the Board of Trustees: Long-term Care for the Chronically Disabled Elderly. Chicago, American Medical Association, 1984.
18. Steinmetz S: Battered parent. Society 1978, 15:54-55.
19. Report D of the Board of Trustees: Health Care for the Aged Population. Chicago, American Medical Association, 1983.
20. O'Malley TA, O'Malley HC, Everitt DE, et al: Categories of family-mediated abuse and neglect of elderly persons. J Am Geriatr Soc 1984, 32:362-369.
21. Hickey T, Douglass RL: Neglect and abuse of older family members: Professionals' perspectives and case experiences. Gerontologist 1981B; 21:171-176.
22. Kimsey LR, Tarbox AR, Bragg DF: Abuse of the elderly—the hidden agenda: I. Caretakers and categories of abuse. J Am Geriatr Soc 1981, 29:465-472.
23. Ghent WR, DaSylva NP, Farren ME: Family violence guidelines for recognition and management. Can Med Assoc J 1985, 132:541-553.
24. Rathbone-McCuan E, Voyles B: Case detection of abused elderly parents. Am J Psychiatry 1982, 139:189-192.
25. Fulmer TT, Cahill VM: Assessing elder abuse: A study. J Gerontol Nurs 1984, 10:16-20.
26. Villamore E, Bergman J (eds): Elder Abuse and Neglect: A Guide for Practitioners and Policy Makers. Manual prepared for the Oregon Office of Elderly Affairs by the National Paralegal Institute, San Francisco, and Legal Research and Services for the Elderly, Boston, February 1981.
27. Elder Abuse: Guidelines for Intervention by Physicians and Other Service Providers. Seattle, Washington State Medical Association, 1985.
28. Meier D, Casse IC: Nursing home placement and the demented patient: Case presentation and ethical analysis. Med Public Issues 1986, 104:98-105.
29. Pearson L: Elder abuse: A social quandary. Caring 1986, 5:22-25.

Members of the Council on Scientific Affairs are as follows: John R. Beljan, MD, Philadelphia, Vice-Chairman; George M. Bohigian, MD, St. Louis; Stefano Bertozzi, Cambridge, Mass, Medical Student Representative; E. Harvey Estes, Jr, MD, Durham, NC; Ira R. Friedlander, MD, Chicago, Resident Representative; John H. Moxley III, MD, Los Angeles, Chairman; William C. Scott, MD, Tucson; Joseph H. Skom, MD, Chicago; James B. Snow, Jr, MD, Philadelphia; Richard M. Steinhilber, MD, Cleveland; Jack P. Strong, MD, New Orleans; Henry N. Wagner, Jr, MD, Baltimore; William R. Hendee, PhD, Secretary; William T. McGivney, PhD, Assistant Secretary. Staff authors are as follows: A. Harold Lubin, MD; Therese Mondeika, RD; Robert Rinaldi, PhD; and Valerie Vivian.

"SELLING PRACTICES
IS OUR BUSINESS"

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping hundreds of doctors like yourself buy and sell their practices. We guide you through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902

Call to Contributors

Members of the Connecticut State Medical Society reading papers before other organizations are requested to submit their papers to the JOURNAL for consideration by the Board of Editors for publication. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult INFORMATION FOR AUTHORS. This material may be obtained from the *Journal* office. Adherence to the instructions will prevent delays both in acceptance and in publication.

Please send them to:
Robert U. Massey, M.D., *Editor*
Connecticut Medicine
160 St. Ronan Street
New Haven, Connecticut 06511
(203) 865-0587

While you take care of patients, who takes care of you?

Connecticut physicians rely on us for comprehensive insurance and financial services.

- Professional liability coverage
- Business owners protection
- Personal life, auto, and homeowners insurance
- Financial planning
- Complete brokerage services

The Watson Group - professionals serving professionals.

the WATSON GROUP

Arthur A. Watson & Company, Inc.
Financial Action Plans, Inc.
Watson Financial Services Corporation
AAW Physician Plans, Inc.

225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

Editorials

Breast Cancer and the Primary Physician

In this issue of *Connecticut Medicine*, a special article addresses the problem of female breast cancer. In it, the observed increase in the incidence during the last decade is contrasted to some good news of earlier detection and better treatment methods, leading to improved disease-free survival rates, a much desired goal of any program against cancer. However, patients presenting with more advanced cancers are certainly not uncommon, and a preventive health program which includes breast self-examination, regular physicians' examinations, and mammography is still not used often enough by the majority of the female population at risk.

In this monograph, the authors emphasize that the primary physician plays the most important role in achieving earlier detection. Clearly, breast self-examination as practiced by more and more women must be complemented by mammograms at regular intervals, and by regularly spaced physical examinations. By instructing patients in breast self-examination, the primary physician will be instrumental in encouraging more women to take an active role in their own care. By prescribing mammography at appropriately regular intervals, the primary physicians can complement their evaluation and the patient's self-examination. Only this three-pronged attack on the scourge of female breast cancer will bring about improved cure rates with much less sacrifice on the part of American women in 1987 and in the future.

The "Consensus Statement by the Breast Cancer Task Force" also stresses the almost non-existence of the risk of radiation exposure secondary to annual mammography, delivered by the modern, "dedicated" x-ray units, and by newer, more sensitive films used in mammography. Such machines are rapidly replacing the older models in the radiologist's offices, as well as in the hospitals, and in the free standing "Breast Centers." This important information, communicated in the article, should greatly reduce the fears expressed by some physicians as well as the public. Much wider use of this diagnostic tool for "screening" should also result in a cost reduction which will make it available to nearly all women in the near future.

Until technological advances make it possible to improve the methods of detection, or, indeed some day eliminate cancer altogether, we all must work cohesively to improve our ability to diagnose and treat breast cancer at its earliest stage of development.

M.T. Ergin, M.D., FACS

Hartford, CT

The Challenge of Long-term Care

The recent contention over the Medicare assignment issue between Connecticut physicians and some of our older citizens, or rather their sometimes strident political defenders, should not be allowed to dampen our determination to remove all barriers to excellent care for the elderly.

Geriatric programs are beginning to flourish in our hospitals, long-term care facilities, and academic medical centers; clinical and basic research programs in geriatrics and gerontology are already enhancing our ability to prevent or to treat some of the disabling disorders prevalent in older patients. Educational programs are increasing the numbers of physicians, nurses, and social workers dedicated to the care of the elderly.

The most serious threat for all of us as we grow older, however, continues to be cognitive, physical, and emotional losses that destroy health, happiness, and independence at the end of life, taking with them the savings of a lifetime. Against that menace, the Medicare assignment issue is trivial; dollars saved by avoiding physician charges in excess of Medicare for ten years might pay for a week or two of long-term care.

Bernard Z. Friedlander, professor at the University of Hartford and Director of the Hartford Studies in Adulthood and Aging, recently noted:

> Paying for the family home, financing college education, and buying a succession of family cars are often thought of as most people's largest economic undertakings. But in modern America, the great extension of life expectancy, the increasing needs for health and custodial care in the later years—and the great cost inflation of these services—mean that paying for long-term care may constitute the greatest single expense in the entire span of life.

The average length of stay in a nursing home is in excess of twelve months; for some elderly patients institutional care may go on for years, with costs that frequently are devastating. The problem for society and for individuals is getting worse; not only are numbers increasing, but the period of disability at the end of life, in spite of all our efforts, is not decreasing; we are not, as some have predicted, disintegrating suddenly after a long life in perfect health like the deacon's masterpiece in Longfellow's "The Wonderful One Hoss Shay:"

> How it went to pieces all at once,—
> All at once, and nothing first,—
> Just as bubbles do when they burst.

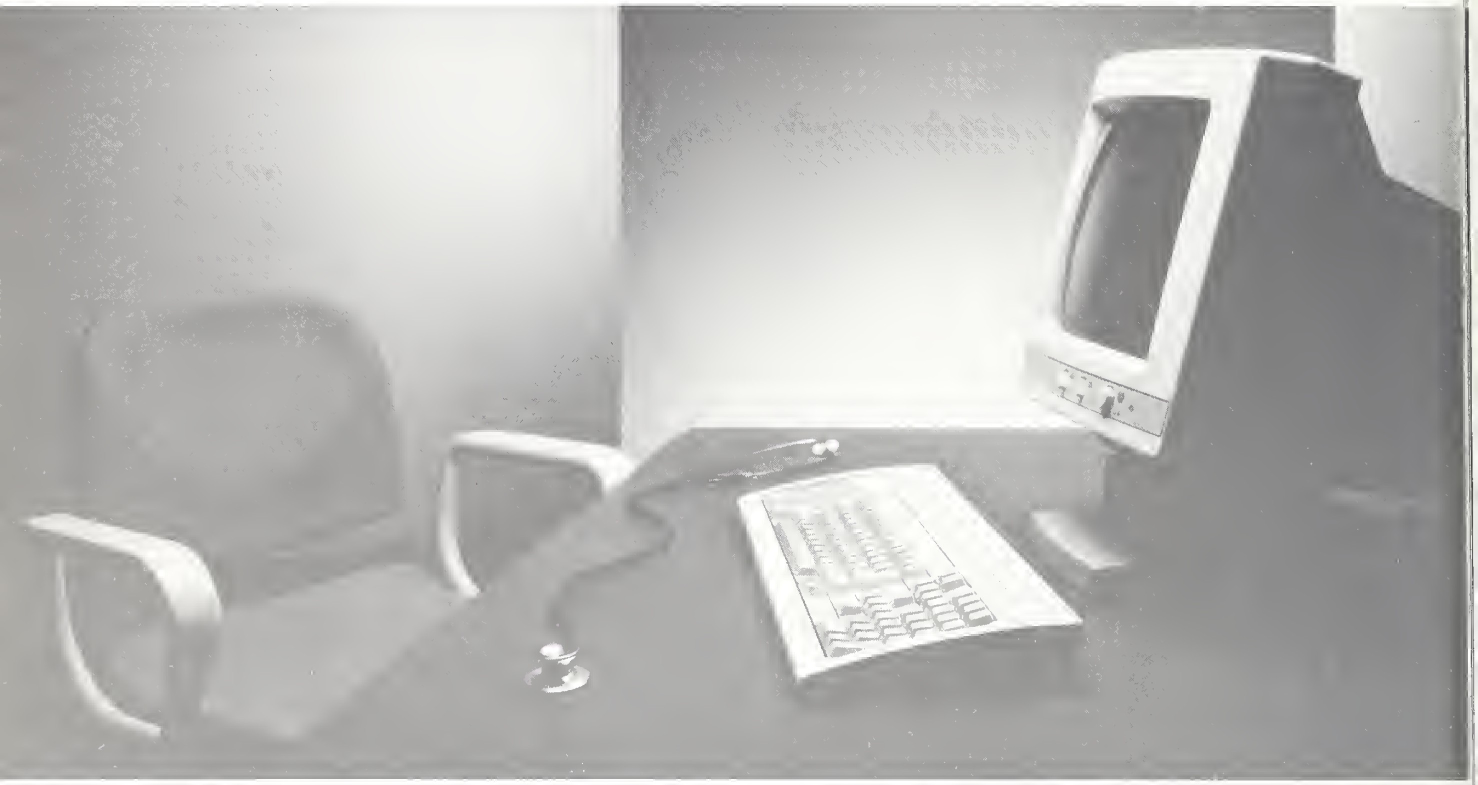
Here is our greatest challenge: to provide a way to develop recources for the lifetime care of permanently and totally disabled elderly without forcing them into poverty. Physicians, academic medical centers, insurance companies, corporations, policy makers, and politicians, together must muster their intelligence, good judgment, and good will to enable us to take this next step toward a more civilized society. Recognition that innovative plans are needed is widespread; the longer we wait the tougher the solution will be.

R.U.M.

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

How More Than 2000 Doctors Have Eased The Pain Of Managing A Practice.



If your practice is like a lot of others, you often spend more time on office problems than on the health problems of your patients.

Our one easy-to-use, fully-integrated computer system can take care of billing, provide financial updates, help you market your practice. And give you more time to do what you went to medical school for.

"Medic continues to be the best system for our clients."
Thomas Booth, president of The PM Group, Battle Creek, Michigan

When this nationally-recognized medical consulting firm recommends a product to their clients, you know it's been carefully scrutinized. After reviewing over 60 medical systems, The PM Group judged our system to be the best. And the one that offers the best support and service.

"It's helped our cash flow tremendously."
Mike Griga, general manager of Mayfield Neurological Institute, Cincinnati, Ohio

Changing the billing system from once a month to once a week is just one way Medic has improved the bottom line of the nation's largest neurosurgery group. Our system can ease the process of sending statements and reduce the number of uncollected bills. Plus, our easy-to-understand printouts help you keep better track of your financial condition.

"When lightning knocked out our system, Medic worked through the night to get it up and running quickly."
Doug Speak, assistant administrator of Suncoast Medical Clinic, St. Petersburg, Florida

We'll do whatever it takes to keep your system working. Day or night. We have a toll-free STAT line to handle questions and problems. And there's a STAT PLUS line from our support center to your system for software updates and diagnoses.

So if you're looking to increase the efficiency, productivity and profitability of your practice, take a look at the Medic Computer System.

Over 2000 physicians in more than 600 practices throughout the U.S. are calling it a minor medical miracle.

medic
computer systems

6601 Six Forks Road, Suite 150
Raleigh, North Carolina 27609

Telephone toll-free: 1-800-334-8534
North Carolina: 919-847-8102

Other offices: Cincinnati, Ann Arbor
Orlando, Pittsburgh, Richmond

Please tell me how Medic Computer Systems can help my practice.

Name ________________

Address ________________

City ________________

State ________ Zip ________

Phone ( ) ________________

Number of physicians in practice ________

Specialty ________________

Medic Computer Systems
6601 Six Forks Rd., Suite 150
Raleigh, North Carolina 27609

The President's Page

Reflections

I begin this article with mixed emotions, mixed from many aspects. It will be my last message as President and while I have enjoyed the year to its fullest, meeting the deadline for this column has been a problem from the start. Many of the issues I have written about have not yet been resolved; some of them look promising and some of them appear to be doomed.

Happily, as I write this, one of the largest undertakings this Society has ever embarked upon seems to be coming to fruition: MD Health Plan, is almost assured of reaching its goal. Three and a half million dollars have been raised and the granting of a license by the Insurance Commissioner is imminent. We still need another million dollars to break escrow, but that seems almost a formality. Once we have been granted the license and begin the marketing, there will be additional incentives for those to join who have not yet done so. Much has been written about physician-run HMO's and not always in a positive light. However, the wise decision of our advisors to capitalize our program adequately should enable us to avoid most of the pitfalls which have plagued other plans. If physicians will put aside their petty gripes and unite behind their plan, it will be the best in the state. Decisions about the delivery of health care, both in quality and quantity, should be based on sound medical decisions and not necessarily on corporate policy, which may not always consider the medical issues at hand.

Mandatory Medicare assignment in one form or another appears to be on its way to passage. The recent decision of the Federal Appeals Court in Massachusetts will do nothing to strenthen our position. By a three-to-nothing decision it has upheld the constitutionality of the law in our sister state to the north. This matter will eventually reach the Supreme Court, but there is no guarantee that the Court will even hear it, much less overturn the lower court's decision. Some of their recent decisions suggest that they might not find in our favor.

We will have mounted a concerted legislative attack, both by mail and by phone, by the time this article is published, and it is my fervent wish that the response of the membership will be better than it has been in the past. Our attempt to mount a strong showing at the Capitol on the day that the bill, H.B. 5108, was being voted on by the Public Health Committee was truly abysmal. Buses were arranged for, notices were posted and/or mailed with as much advanced warning as possible, and approximately 50 physicians were in attendance. This was a very disappointing turn-out when you consider our membership of over 5,000.

If ever the physicians were right on an issue, this was the one, and it was frustrating to see our legislators bow before the pressure of a group of activists who were using our senior citizens for their own political shenanigans. Every major newspaper that has carried an editorial on this topic has been on our side. This editorial support has been unprecedented. It is inconceivable that a bill which will require additional state funds and personnel to administer should even be considered when we are willing to administer a similar program without any cost to the state and, in fact, already have such a program in place and operational. Our Courtesy Card Program should be given a chance, and, if it fails, there is time enough to resort to legislative and bureaucratic remedies.

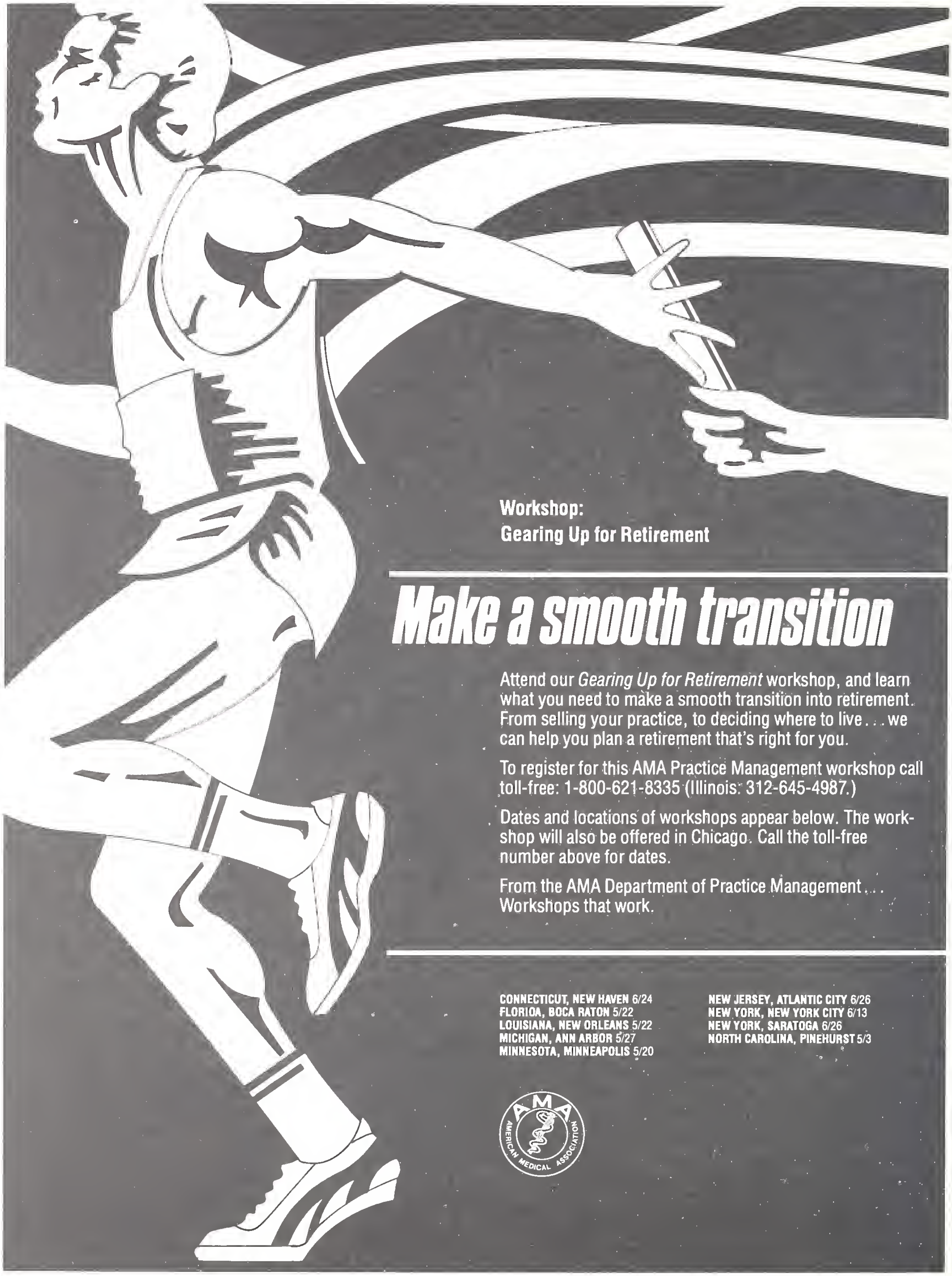
I should point out that the Public Health Committee felt that they had actually reached a compromise in the bill which they reported out of committee. They moved the mandatory aspect tied to licensure, and, in place of that, put in civil penalties of $1,000 for each infraction. They also raised the eligibility level to adjusted gross incomes of $25,000 for a single person and $32,000 for a couple; this in face of raising the Connpace program to $13,000 and $16,000 in the same year. Nowhere in the bill is there mention of how the program will be administered or how the eligibility will be determined. I only hope that by the time you read this, the physicians in the state will have reached their legislators and convinced them of the wisdom of our program and the folly of theirs.

There is also a movement under foot to dismantle some of the Tort Reform which was passed last year. There have been several bills introduced by the trial attorneys to remove joint-and-several and collateral sources from the bill that was passed last year. The effect of this would most assuredly result in an increase in malpractice premiums. How unfair to mandate care at a ridiculously low level on one hand and then remove some of the laws that have stabilized our most costly expense on the other.

Triplicate prescription forms for Class 2 narcotics is another bill working its way through the legislature. We have been so preoccupied by the preceding legislative issues that we have only had an opportunity to mention this to the membership in fleeting moments when these other bills were not taking all our attention. That does not mean that the Society and its lobbyists have not been working hard to defeat this onerous legislation. It has been shown repeatedly that a requirement for this type of form does nothing to stem the use of prescriptions for illegal purposes. It would mean that thousands of forms would be delivered to the Department of Consumer Protection each week; how this would enhance the spotting of drug abuse is beyond comprehension.

I would like to thank the members for allowing me to represent them this year, and I want you all to know that I have carried out that responsibility to the best of my ability.

Joseph C. Czarsty, M.D.
President



For the business of managing your practice

Workshop:
Gearing Up for Retirement

Make a smooth transition

Attend our *Gearing Up for Retirement* workshop, and learn what you need to make a smooth transition into retirement. From selling your practice, to deciding where to live . . . we can help you plan a retirement that's right for you.

To register for this AMA Practice Management workshop call toll-free: 1-800-621-8335 (Illinois: 312-645-4987.)

Dates and locations of workshops appear below. The workshop will also be offered in Chicago. Call the toll-free number above for dates.

From the AMA Department of Practice Management . . . Workshops that work.

CONNECTICUT, NEW HAVEN 6/24
FLORIDA, BOCA RATON 5/22
LOUISIANA, NEW ORLEANS 5/22
MICHIGAN, ANN ARBOR 5/27
MINNESOTA, MINNEAPOLIS 5/20
NEW JERSEY, ATLANTIC CITY 6/26
NEW YORK, NEW YORK CITY 6/13
NEW YORK, SARATOGA 6/26
NORTH CAROLINA, PINEHURST 5/3

AMA
AMERICAN MEDICAL ASSOCIATION

Reflections on Medicine

Eponyms and Old Friends

ROBERT U. MASSEY, M.D.

One of the many reasons for teaching the history of medicine to medical students is to introduce them to some outstanding men and women they might never otherwise meet; probably they will hear their names, but without a proper introduction they will never know who they were or what they did. They will never remember them.

Not all of their medical forebears will seem especially interesting, perhaps because as students or physicians they will never get to know them well enough; one can hardly get to know everybody. A few might become life-long friends. William Osler may now have more friends and admirers than he had when he was alive; there are Osler clubs and societies all over the English-speaking world. During the Middle Ages Hippocrates and Galen were more widely known than ever in their lifetimes, mostly by admirers rather than by friends.

The marvelous thing about historical people is that each keeps a kind of perpetual open-house. You can visit anytime you like: call on William Harvey or Thomas Browne when you are in the mood for 17th century England, or Moriz Kaposi or Theodor Billroth if you want to spend an evening in late 19th century Vienna. While you are there you might, if you can find a copy of his plays, drop in at the Burgtheater for the first performance of otolaryngologist Arthur Schnitzler's new play, *Liebelei*, which opened 9 October 1895 (and was recently presented at the Long Wharf Theater in New Haven under the title, *Dalliance*).

Names in medicine have a way of appearing almost anytime; once they are stored away in long-term memory, an unexpected encounter will evoke a response, and we start off on a reverie, or better yet, a conversation or a search from which we always emerge enriched.

Eponyms are great for that sort of thing; it is unfortunate that we have discouraged their use in medicine, partly, so we say, in the interest of greater clarity or precision, but also partly, I suspect, because we are persuaded that a forward-looking enterprise like medicine has no business wasting time with the past, especially the past of recent memory. A friend, a pathologist and amateur historian, once observed that we are forever discrediting our fathers and rediscovering our grandfathers.

In a few instances we have even failed to recall that an epopnym is an eponym. When students with their newfound vocabularies speak of a gram-negative septicemia, not one of them will suspect that Gram was a person, Hans C. J. Gram, a Danish physician who died only a half century ago. I recently mentioned Koch's postulates to a group of students; there was not a flicker of recognition. Most had heard of Louis Pasteur; no one knew anything about Robert Koch or Rudolf Virchow; they had not been introduced. Even Osler's name was unknown to them, and there were uncertainties about Salk and Sabin, Watson and Crick.

Who would ever speak of Osler-Weber-Rendu disease, or Osler's nodes? Even the Babinski reflex has been replaced by the "up-going toe sign," or, if Joseph Babinski's name is used in the write-up, it is generally spelled with a lower case "b!" Last year as we were concluding a second year session in physical diagnosis, one of the students asked, "Who was Babinski?" That led us into another hour-long search, not only for Babinski, but for other 19th century neurologists as well: John Hughlings Jackson, Wilhelm Heinrich Erb, Otto Westphal, Pierre Marie, and especially Jean-Martin Charcot. By early evening we had all learned something, and a few of us improved our stores of historical and even clinical knowledge.

If the eponyms all go, these occasions for asking, "I wonder who he was?" will never provide the dessert at the end of an intellectual meal. Teachers of anatomy undoubtedly mention Glisson's capsule, but rarely Bowman's. For curious reasons some eponyms are more durable. Patients are still described as being "cushingoid," a barbarism, and we still hear Cushing's disease and Cushing's syndrome, confused as usual. Recently a colleague and I were searching for our cars in the medical school parking lot, having only the most imperfect recollection of where we had left them that morning. My friend turned to me in exasperation: "I wonder if we're both getting what's-his-name's disease?"

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

Letters to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgment), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1½ pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent *Journal* article should be received within six weeks of the article's publication.

HOUSE CALLS (CONTINUED)

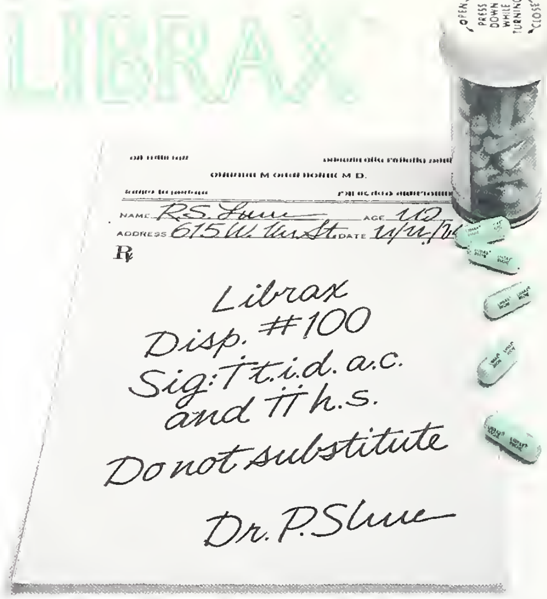
To the Editor: In your interesting comments on "House Calls" in the December Journal I think you have ignored one of the major factors leading to the declining use of home care. This, of course, is the influence of the third party carrier. Unfortunately those persons who have managed the Blues have had the principal influence as far as third-party carriers were concerned in promoting hospitalization in lieu of home care and of office care. Throughout the history of the Blues and other third-party payors patients have been remunerated for physician charges in the hospital always in preference to home care. It has only been in recent years and only in special policies that the blues have included coverage for home care. The reasoning usually given was that coverage might result in unlimited unnecessary calls. This of course was manifestly ridiculous, for during the last fifty years most physicians who made house calls were far too busy to extend their practice beyond necessary home care. Not only did the Blues and other third-party payors make it financially desirable for patients to be in the hospital at greatly increased cost but frequently with decrease in quality of care and increased risks of secondary infections, etc. The general attitude promoted by third-party payors was that there was something inferior about home care. No doubt administrators were aware of the factors considered in your article. I think you probably also realize that the Blues paid for laboratory work in the hospital and would not reimburse patients for laboratory work done at home. Throughout my 38 years of practice in Essex our office has provided home care as appropriate. We have made available laboratory work, etc. when necessary and have provided other ancillary services. We have not provided home care for convenience or for economy but because this has been the best place to provide appropriate care for many illnesses, particularly in children and, as you mentioned, the elderly. We have been delighted to see the change in attitude toward home care in the last few years, although the reasons (economy) are certainly subject to question. Unfortunately we now find the third party payors and hospitals entering home care and assuming responsibility for providing home care in a manner which will probably increase the expenses and perhaps even in some cases lower the quality due to substitution of ancillary for physicians services and by-passing the primary care physicians.

Hopefully, third-party financing and greater availability of ancillary services will contribute to better quality and availability of home care without the interference in the practice of medicine and attempts to control our practice which seem to pervade those areas in which hospitals and third-party payors now exercise control over patient care.

W. Raymond James, M.D.

Essex, CT

SPECIFY
LIBRAX



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium bromide

Please consult complete prescribing information, a summary of which follows:

*

Indications: Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows:
"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.
Final classification of the less-than-effective indications requires further investigation.

Contraindications: Glaucoma; prostatic hypertrophy, benign bladder neck obstruction; hypersensitivity to chlordiazepoxide HCl and/or clidinium Br.
Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

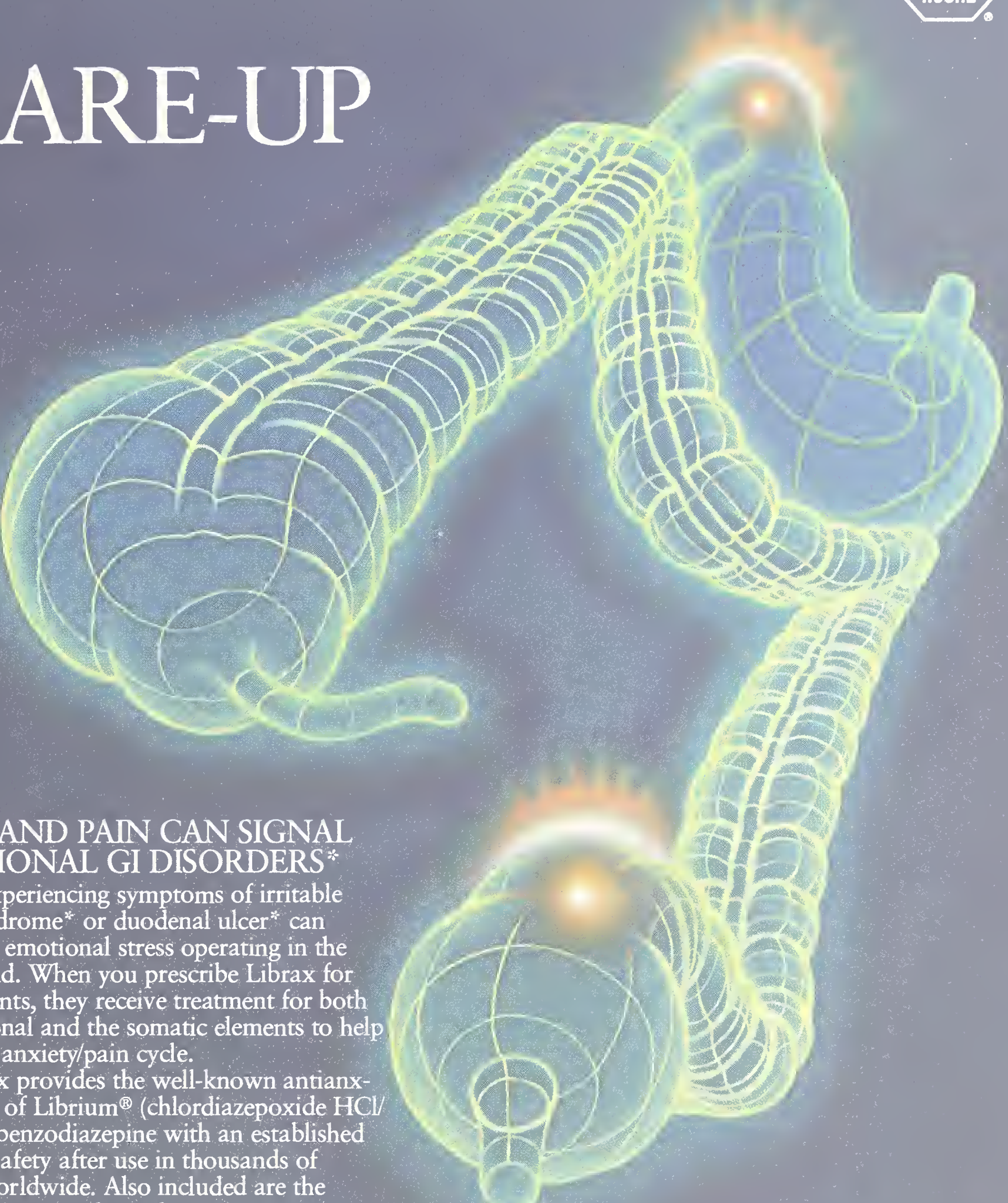
> *Usage in Pregnancy:* **Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.**

As with all anticholinergics, inhibition of lactation may occur.
Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship not established.
Adverse Reactions: No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated; avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered: isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction; changes in EEG patterns may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

ROCHE®
Roche Products Inc.
Manati, Puerto Rico 00701

ROCHE®

FLARE-UP



SPASM AND PAIN CAN SIGNAL FUNCTIONAL GI DISORDERS*

Patients experiencing symptoms of irritable bowel syndrome* or duodenal ulcer* can often have emotional stress operating in the background. When you prescribe Librax for these patients, they receive treatment for both the emotional and the somatic elements to help relieve the anxiety/pain cycle.

Librax provides the well-known antianxiety action of Librium® (chlordiazepoxide HCl/Roche), a benzodiazepine with an established record of safety after use in thousands of patients worldwide. Also included are the proven antispasmodic and antisecretory actions of Quarzan® (clidinium bromide/Roche), the component which helps to reduce colonic spasm and hypersecretion and helps also to alleviate the pain they cause.

LIBRAX: FOR THE DUAL PROBLEMS OF FUNCTIONAL GI DISORDERS.

SPECIFY ADJUNCTIVE LIBRAX®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium bromide.

ANTIANXIETY
ANTISECRETORY
ANTISPASMODIC

*Librax has been evaluated as possibly effective as adjunctive therapy in the treatment of duodenal ulcer and the irritable bowel syndrome.

Copyright © 1983 by Roche Products Inc. All rights reserved.

Please see reverse side for complete product information.

THE MOUNT SINAI CENTER
FOR FACIAL NERVE DISORDERS

A multi-disciplinary team of physicians and surgeons at The Mount Sinai Hospital for the complete evaluation and treatment of facial nerve disorders.

PROGRAM DIRECTORS

AVRIM R. EDEN, M.D.
CHIEF OF OTOLOGY
THE MOUNT SINAI MEDICAL CENTER

DAVID SIMPSON, M.D.
ASSISTANT PROFESSOR OF NEUROLOGY
CO-DIRECTOR, EMG LABORATORY

Address for patients and correspondence:

FACIAL NERVE CENTER
The Mount Sinai Hospital
19 East 98th Street
Suite 6A, Box 1191
New York, NY 10029

FOR PATIENT APPOINTMENTS OR INFORMATION:

(212) 650-2309

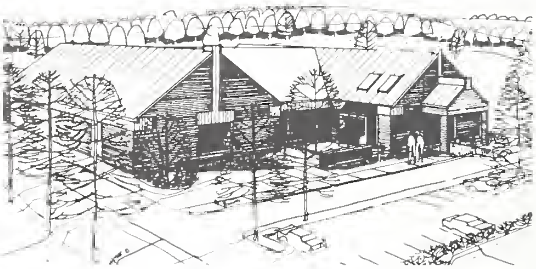
Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:
- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:
- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Medical) for Ophthalmology.
- CO_2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

The Baby M Case: Background and Conclusions

JOSEPH M. HEALEY, J.D.

On May 5, 1986, William Stern and his wife, Elizabeth, filed suit in a New Jersey Superior Court seeking to compel enforcement of a surrogate parenting agreement. The defendant, Mary Beth Whitehead, had been artificially inseminated with Mr. Stern's sperm, had conceived and delivered a child, but had refused to surrender the child after birth as required by the agreement. The Sterns sought to compel surrender of the child, to obtain termination of Mrs. Whitehead's parental rights, and to proceed with the adoption of the child by Elizabeth Stern. This was the beginning of a courtroom drama which resulted in national and international attention and which produced the most extensive judicial review of surrogate parenting up to the present. Though the court's opinion has limited precedential value because it is a trial court decision subject to appeal and reconsideration, the issues raised are of such significance as to justify examining the opinion and its implications for states such as Connecticut in which discussions about the desirability of surrogate agreements are underway. This month's column will explore the factual background and the court's conclusions, while next month's column will consider the reasoning behind the decision and the implications of the decision.

On February 6, 1986, Mr. Stern and Mr. and Mrs. Whitehead signed a surrogate parenting agreement. Mrs. Whitehead at trial testified that her obligations were to attempt conception by artificial insemination, upon conception to carry the child to term, to deliver the child, and surrender the child to Mr. Stern, renouncing at that time all of her parental rights. It was agreed that Mrs. Whitehead would assume the risks of the pregnancy and childbirth, that she would not abort the child unless amniocentesis revealed a genetic or congenital abnormality *and* Mr. Stern requested an abortion. In the event the child were born with genetic or congenital abnormalities, Mr. Stern would assume legal responsibility. Mrs. Whitehead was to be paid $10,000 and all medical expenses including dental expenses for performing her contractual obligations.

Over the course of the next several months, Mrs. Whitehead was inseminated with the seminal fluid of Mr. Stern nine times. In July, 1985, she conceived. Throughout the pregnancy, the Sterns kept in close contact with the Whiteheads. Baby M was born on March 27, 1986. Mr. Whitehead's name appeared on the birth certificate, as did the name of the child, Sara Elizabeth Whitehead. This violated the understanding between the parties. Mrs. Whitehead testified at trial that at the moment of birth she realized that she could not and would not give up the child. Reluctantly on March 30, 1986, she surrendered the child to the Sterns. Mrs. Whitehead was described as extremely depressed and a suicide threat was noted. On March 31, 1986, she convinced the Sterns to permit her to take Baby M for a one week visit. Out of concern for Mrs. Whitehead's well-being, the Sterns acquiesced with the expectation that the child would be returned. Without the knowledge of the Sterns, Mrs. Whitehead flew to Florida with the child and stayed there almost a week. On April 12, 1986, Mrs. Whitehead announced her intention to keep the baby. On May 5, 1986, the Whiteheads failed to comply with a preliminary court order requiring that they surrender Baby M to the Sterns. Later that night the Whiteheads disappeared and their whereabouts were unknown to the Sterns for 87 days. Subsequently they returned to New Jersey to defend against the complaint of the Sterns.

The trial was a complicated undertaking. Thirty-eight witnesses testified. There was disputed testimony about many of the key issues involved. On March 31, 1987, Judge Sorkow entered judgment for the Sterns concluding that the surrogate parenting agreement should be enforced. Permanent custody was given to Mr. Stern and the parental rights of Mrs. Whitehead were terminated. The Whiteheads were ordered to refrain from interfering with the parental and custodial rights of the Sterns. The reasons for these conclusions and their implications will be explored in next month's column.

JOSEPH M. HEALEY, J.D., Associate Professor, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

REFERENCE

1. In re Baby M (NJ Super Ct Chanc Div Bergen City No FM-25314-86E, 3/31/87).

From the Executive Director's Office

COUNCIL MEETING

Wednesday, April 8, 1987

Attendance

Present in addition to the Chairman, Dr. Guy W. Van Syckle and Vice-Chairman, Dr. M.S. Eslami were: Drs. Abbot, Ahrens, Bobruff, Bonner, Czarsty, Freedman, Freidberg, James, Kamens, McDonnell, O'Brien, Orphanos, Petrie, Ragusa, Robbins, Rose, Sadowski, Schwartz, Sullivan, Jr., Sweet, Villa, Waldron, Welch, Wetstone, Whalen and Zlotsky.

Also present: Mr. Norbeck, Mrs. Lindquist, Mr. Brunell, Mr. Sullivan, Mr. Staples, Mr. Tomat (FCMA), Mrs. Clark (HCMA) and Mr. Fiorentino (HCMA).

Absent were: Drs. Ahamed, Beck, Dardick, Finn, Fox, Reyelt, Jr. and Zanker.

Reports from Physicians Serving on State and Federal Agencies

Dr. Kamens reported on the CPRO activities for the past two years. He discussed the total volume of review conducted by CPRO and addressed the topics of re-admission as a measure of prematurity of discharge, the effect of ambulatory procedures on quality of care, quality assurance conducted under generic screening methods and CPRO sanctions activities—levels and results for the past two years.

Report of the President

Dr. Czarsty reported that a geriatric conference, which is being sponsored by CSMS, will be held at the Park Plaza on May 20, 1987. He also brought attention to the brochure entitled, "The 50 Most Commonly Asked Questions About Nursing Homes" which was published by the CSMS Committee on Public Affairs and had been distributed to the Council members. A communication from George Conomikes of California offering to set up two "Practice Management Seminars" was discussed. It was VOTED to approve of holding two seminars in Connecticut with the maximum amount of CSMS expenditure being $1,000. NOTE: Those seminars will be scheduled in the fall. Dr. Czarsty noted that the Public Health Committee of the legislature had reported out a mandatory Medicare assignment bill that would include income guidelines of $25,000 for individual seniors and $32,000 for couples. It also included a civil penalty of $1,000 per incidence if the physician did not comply with the law instead of tying the legislature to licensure. The Society will continue its efforts to promote the Medical Courtesy Card and to oppose the Public Health Committee bill.

Report of the Executive Director

Mr. Norbeck read to the Council a prepared "white paper" on the issue of mandatory Medicare assignment. Following a lengthy discussion, it was VOTED to continue efforts to have Bill 5108 referred to the Judiciary and Insurance committees of the legislature. It was further VOTED that each member of the Council should write to local newspapers concerning the issue and make themselves available to radio talk shows. It was reported that some of the gains made in tort reform were in jeopardy and that bills have been introduced to repeal periodic payments, contingency fees, and joint and several payments.

M.D. Health Plan Update

Dr. William A. whalen reported as follows:

a. The CEO will take office in mid-April.

b. The Insurance Commissioner will issue a license at 3.5 million dollars instead of 4.5 million dollars, and as soon as the license is received, marketing can begin.

c. Staff and Board Members have been traveling throughout the state with booths being set up in hospitals to answer questions about the stock issue.

Following discussion, Dr. Whalen reported that M.D. Health would need additional funds until such time as they would break escrow. It was VOTED to countersign an additional line of credit of $300,000 for M.D. Health Plan.

Connecticut Medical Management, Inc. (CMMI)

Dr. James Orphanos, President of CMMI, which is a wholly-owned subsidiary of CSMS, conducts the management and operation of the Connecticut Medical Insurance Company (CMIC). In that capacity, CMMI not only implements the policies set by the CMIC Board, but represents the interest of CSMS members. In its third year of operation, CMIC had 2,126 policy holders. CMIC's total assets are $54.2 million, up from $24 million in 1985. He further reported that when CMIC was formed, CMMI contracted with American Health Services, Inc. (AIS) to provide their services as professional advisors for a minimum period of three years. The CMMI Board has now determined that the contract with AIS will be allowed to expire and operations will be "turn-keyed." Transition plans are being formulated to accomplish this and will be implemented in 1987. A full report will be made to the House of Delegates.

Health Policy Agenda

Dr. Frank K. Abbot, Chairman of the Ad Hoc Committee, studying the HPA report gave a progress report stating that the committee has reviewed 49 of the 195 recommendations in the report. Each recommendation is being carefully studied and a decision will be made as whether it should be endorsed and implemented. It was VOTED to authorize the Ad Hoc Committee to contact various committee chairmen for comment on some of the recommendations.

Section on Dermatology

It was VOTED to approve a request from the Section on Dermatology to change their name to the Section on Dermatology and Dermatologic Surgery.

Life Members

It was VOTED to receive as information the following list of Life Members effective 1/1/87: Jeffrey Ferris, M.D., Kent (L); Joseph P. Shea, M.D., Bridgeport (F) and Charles R. Williams, M.D. Fairfield (F).

N.B.: *The foregoing is a summary of the proceedings and actions of the Council on April 8, 1987. Detailed minutes of the meetings are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.*

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

AMBULATORY CARE

Full or part time position available for physician in the Colchester Immediate Care Medical Center opening mid-April. Salary and benefits negotiable. Please send C.V. to: Dr. Robert Moskowitz, Stonemill Road, Mansfield, CT 06250 or phone (203) 429-6109.

Full time position available for an ambulatory care physician to work in an established walk-in center in the greater Bridgeport area. Please send curriculum vitae to Immediate Health Care, 15 Armstrong Rd., Shelton, CT 06484. Attn: Darlene.

EMERGENCY MEDICINE

Full time position available in a modern progressive 102-bed general hospital in Northeastern Connecticut. Board eligible/certified or prepared in Emergency Medicine with General Surgery, Family Practice or Internal Medicine background preferred. Attractive compensation and benefits. Send CV and benefits to Satya Agarwal, M.D., FACEP, Director, Emergency and Outpatient Services, Rockville General Hospital, 31 Union St., Rockville, CT 06066. Phone (203) 872-0501.

FAMILY PRACTICE

Established prepaid staff model HMO seeks an experienced BC/BE family practitioner in Urgent Visit Dept. CHCP is affiliated with Yale New Haven Hospital. Position available immediately. Liberal benefit package. Send CV and salary requirement to: CHCP, Urgent Visit, Chief of Medicine, 150 Sargent Dr., New Haven, CT 06511. EOE M/F

BC/BE Family Physician to join group of five family physicians in Meriden-Wallingford-Cheshire area. No obstetrics. Salary plus incentive; desirable area. Send C.V. to: Family Practice Associates, P.C., 116 Cook Ave., Meriden, CT 06450

Family/General Practice in urgent care centers providing acute and continuing care. Well-rounded medical background and excellent patient relation skills required. Full and part time positions. Competitive compensation, enjoyable work settings and pleasant ancillary staff. Send C.V. to: PHYSICIANCARE, 60 Church St., Yalesville, CT 06492. (203) 284-9099.

INSTITUTIONAL MEDICINE

Norwich Hospital, a 649 bed State psychiatric treatment facility has an opening for full or part-time physicians. Position responsible for medical diagnosis and treatment of patients. Benefits include a comprehensive medical package, paid leave time, retirement plan and possible housing on grounds. Connecticut license required. Contact: Office of Assistant Superintendent, Clinical; Norwich Hospital, P.O. Box 508, Norwich, CT 06360; (203) 889-7361, Ext. 264. AA/EOE.

Health Director, City of Stamford, CT. Candidate must be a physician licensed to the standards of the State of Connecticut and a graduate of a recognized school of Public Health with at least five years' experience in public health work. Requirements include intricate knowledge of preventive medicine, environmental management, school health, social programs and legislative action. Hired individual may not engage in the private practice of medicine, but may operate as chief medical advisor to the school system. Salary range is $55,000 to $70,000 per year with a five year contract. Benefits are available. Please send resume with a cover letter outlining your qualifications for this position by April 30, 1987 to: Sherry Williamson, P.O. Box 10152, Stamford, CT 06904-2152. EOE/AA.

Vice President of Medical Affairs. The Connecticut Hospice, Inc., is seeking an individual to provide overall medical supervision. The Vice President serves as medical director for the home care and inpatient hospice program and bereavement team and shares patient care duties with the physician staff. The Connecticut Hospice is licensed in the State of Connecticut as a 44-bed short-term hospital certified by Medicare as a general hospital with a hospital-based home care program, and JCAH accredited. The facility is located near New Haven. Qualifications: Board Certification in a primary care specialty and eight years post residency experience. Familiarity with community based and institutional health care delivery. Demonstrated interpersonal and interdisciplinary skills. Salary negotiable. Please reply by resume to: Rosemary J. Hurzeler, President, The Connecticut Hospice, Inc., 61 Burban Dr., Branford, CT 06405. E.O.E.

Substance Abuse. Central CT, immediate openings for full-time Physicians and Psychiatrists in the Substance Abuse Program. CT Valley Hospital is a JCAH accredited hospital with 96 substance abuse beds for both detoxification and treatment programs in both Alcoholism and Drug Abuse. CT license required. Please send your curriculum vitae to Richard Houser, M.D., Chief of Professional Services, CT Valley Hospital, Box 351, Middletown, CT 06457. AA/EOE.

INTERNAL MEDICINE

Internist, can have specialty interest, to join established practice as partner in Avon, CT in superb office setting. Near medical school and hospitals. BC/BE. Please send CV to CSMS, c/o IM/HA.

For Sale: Practice of Internal Medicine. Excellent location and opportunity. Please call 523-7971.

Practicing internist will rent part of his office with use of equipment (X-ray, EKG, Spirometer, etc.) to another doctor wishing to practice part time in New Haven downtown area. 624-5706.

ORTHOPEDIC SURGERY

Expanding North Central Connecticut health care system (Acute Care Community Hospital, Free-standing Surgery Center, Nursing Home, Medical Education and Wellness Center) seeks BC/BE Orthopedic Surgeons to establish community-based practice in a service area of 100,000. Exceptional first year income guaranteed and office support systems for establishing practices provided. Strong partnership possibilities as well as academic affiliation with University teaching hospitals. Send replies to CSMS, c/o ORTH/AAL.

OTOLARYNGOLOGY

Must have facial plastic surgery training to join busy practice in northwestern Connecticut. Excellent opportunity in well established progressive practice. Board certification preferred. Send CV with reply to CSMS, c/o OTO/TM.

PEDIATRICS

Pediatrician. BE/BC. University trained, needed to join solo Pediatrician in semi-rural Western Connecticut. Please call (203) 355-4113.

PRIMARY CARE

Full time physicians for walk-in medical services. West Haven and Milford. Write, CSMS, c/o PC/BY.

Internist. The Northeast Permanente Medical Group in the greater Hartford area of Connecticut is seeking BC/BE primary care internists for 1987. The Medical Group is the exclusive provider of health care services for the Kaiser Foundation Health Plan of CT. This attractive opportunity offers membership in a multispecialty professional corporation, with enrollment of approximately 30,000 members with competitive salary and benefit programs. University-hospital training or its equivalent is desirable. Address inquiries and resumes to: Alan Greenglass, M.D., Chief, Department of Internal Medicine, c/o Physician Placement Dept., Northeast Permanente Medical Group, P.C., 60 Washington St., Suite 401, Hartford, CT 06106.

RADIOLOGY

Radiologist wanted for diagnostic radiology in private office practice in Waterbury area. Full-time associate preferred but will consider part-time. All replies confidential. Reply CSMS, Box RAD/VA.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

GENERAL PRACTICE

April '87. Age 52. Licensed in Connecticut. AB elig. MD, University of Lausanne, Switzerland; Int., Bronx-Lebanon Hospital Center, Bronx, NY. Prefers solo type practice. Write, CSMS, c/o CT/GP.

GENERAL SURGERY

July '87. Age 34. Licensed in Connecticut. Presently in practice. Nat'l bds. AB cert. MD, American University of Beirut; Int., St. Mary's Hospital, Waterbury, CT; Res., Hospital of St. Raphael, New Haven, CT; Fellowship, Texas Heart Institute, Houston, TX. Prefers solo, group or associate type practice in a medium-sized community. Write, Akram Hassanyeh, M.D., Box 609, McDowell, KY 41647.

INTERNAL MEDICINE

Immediately available. Age 44. Licensed in Connecticut. Presently in practice. FLEX. AB elig. MD, Royal College of Surgeons, Ireland; Int. and Res., McKeesport Hospital, McKeesport, PA; Fellowship, Mt. Sinai Hospital, Hartford, CT and Yale University, New Haven, CT (oncology). Prefers solo type practice. Write, Eric N. Grosch, M.D., 25 Peddler Dr., Windsor, CT 06095.

Aug. '87. Age 28. Nat'l bds. AB elig. MD, Cornell University Medical College; Int. and Res., George Washington University Hospital. Prefers group, associate and institutional type practice. Write to: Joanne Foodim, M.D., 1819 Kalorama Rd., N.W., Washington, DC 20009.

GERIATRICS. July 1987. Age 51. Nat'l bds. AB elig. MD, Sto. Tomas, Philippines; Int., Brookdale Hospital and Medical Center, Brooklyn, NY; Res., Catholic Medical Center, Queens, NY; Fellowship, St. Barnabas Hospital, Bronx and Elmherst City Hospital, Queens, NY. Wishes to work in an ambulatory care setting or in solo practice with guaranteed salary. Write, CSMS, c/o LGT/IM.

OBSTETRICS & GYNECOLOGY

Immediately available. Age 58. Licensed in Connecticut. AB elig. MD, University of La Plata, Argentina; Int. and Res., St. John's Episcopal, Brooklyn, NY. Prefers Fairfield County; part time only. Fluent in Spanish, Italian and English. Write, Dora Perino, M.D., 223 Misty Wood Lane, Fairfield, CT 06430.

OTOLARYNGOLOGY

April '87. Licensed in Connecticut. Presently in practice. AB elig. MD, Queens College, St. Andrews University, Scotland. Int., Maryfield Hospital, Dundee, Scotland; Res. Kingston General/Ottawa General, Canada; Fellowship, St. Luke's - Columbia Presbyterian. Type of practice depends on opportunity. Write, CSMS, c/o PD/OTO.

Oct. '87. Age 30. Nat'l bds. AB elig. MD, State University of NY-Downstate; Int. and Res., Albert Einstein/Montefiore Medical Center. Prefers solo, group, associate or institutional type practice preferably in the Fairfield/Stamford area. Write to: CSMS, c/o RL/OTO.

PATHOLOGY

Immediately available. Age 39. Nat'l bds. AB cert. MD, Autonomous University of Sto Dgo, Dominican Republic; Int., "Enrique Lithgow Care," Sto Dgo., Dominican Republic; Res., Danbury Hospital, Danbury, CT. Prefers group, associate or institutional type practice. Write, Nelson J. Urena, M.D., 60 Rosebrook Dr., Stratford, CT 06497.

PEDIATRICS

July '87. Licensed in Connecticut. Age 33. FLEX. AB elig. MD, Far Eastern University, Manila, Philippines; Int., Iloilo Provincial Hospital, Philippines; Res., The Brooklyn Hospital, Brooklyn, NY. Any type practice acceptable in a medium-sized community. Write, CSMS, c/o AHC/PED.

July '87. Age 36. FLEX. AB elig. MD, University of Kerala, Kerala, India; Int. and Res., St. Vincent's Hospital, NY. Prefers solo, associate or institutional type practice in a medium to large-sized community. Write, CSMS, c/o PT/PED.

PAID CLASSIFIED ADVERTISING

Thirty-five foot Allmand sloop; every amenity; teak interior; FWC diesel; spinnaker rigged; documented, book value $79,000. First offer over $60,000. (203) 526-4117, (203) 235-6180.

CLASSIFIED ADVERTISING RATES

$50.00 for 25 words or less; 50 cents for each additional word.

$3.00 per insertion for confidential answers sent in care of CONNECTICUT MEDICINE. Payable in advance.

Connecticut Medicine

Vol. 51, No. 6 *The Journal of the Connecticut State Medical Society* June 1987

160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587

CSMS OFFICERS

James P. Orphanos, M.D. Greenwich
President
Norman A. Zlotsky, M.D., Rockville
President-Elect
Roger S. Beck, M.D., Hartford
Vice-President
Annemarie S. Welch, M.D., New Britain
Secretary
Robert R. McDonnell, M.D., New Haven
Treasurer
Lawrence B. Ahrens, M.D., Newington
Speaker of the House of Delegates
Mehdi S. Eslami, M.D., Waterbury
Vice-Speaker of the House of Delegates

AMA DELEGATES

Edward A. Kamens, M.D., Fairfield
Joseph C. Czarsty, M.D., Oakville, *Alternate*
Guy W. Van Syckle, M.D., Danbury,
Chairman of the Council
William A. Whalen, Jr., M.D., Willimantic, *Alternate*
Frank K. Abbot, M.D., Hartford
Jerome K. Freedman, M.D., New Haven, *Alternate*
Stewart J. Petrie, M.D., Derby
Joseph S. Sadowski, M.D., Hartford, *Alternate*

COUNCILORS

Robert P. Ragusa, M.D., Stratford
Fairfield County
Howard J. Wetstone, M.D., Hartford
Hartford County
George H. Rubin, M.D., Torrington
Litchfield County
Richard T. Sweet, M.D., Middletown
Middlesex County
Geroge A. Bonner, M.D., Guilford
New Haven County
Jerome Bobruff, M.D., New London
New London County
Gerald L. Schwartz, M.D., Rockville
Tolland County
Kenneth R. Dardick, M.D., Storrs
Windham County

ASSOCIATE COUNCILORS

Turpin H. Rose, M.D., Danbury
Fairfield County
John J. Sullivan, Jr., M.D., Stamford
Fairfield County
John J. O'Brien, M.D., Hartford
Hartford County
Robert M. Chmieleski, Bristol
Hartford County
W. Peter Reyelt, Jr., M.D., Sharon
Litchfield County
Kenneth Robbins, M.D., Middletown
Middlesex County
Theodore Zanker, M.D., New Haven
New Haven County
Marvin Fox, M.D., Milford
New Haven County
Sultan Ahamed, M.D., Norwich
New London County
Arturo D.P. Villa, M.D., Somers
Tolland County
Stephen M. Upham, M.D., Danielson
Windham County

COUNCILOR AT LARGE

Joseph C. Czarsty, M.D., Oakville

Editor	Robert U. Massey, M.D.
Literary Editor	Sherwin B. Nuland, M.D.
Editor Emeritus	J. Alfred Fabro, M.D.
Assistant to the Editor	Vivian C. Feriola
Staff Assistant	Valerie A. Redman

Editorial Board

Family Practice	Dewees H. Brown, M.D.
Cardiology and Internal Medicine	Martin Duke, M.D.
Psychiatry	Stephen Fleck, M.D.
Dermatology	Robert D. Greenberg, M.D.
Nephrology and Internal Medicine	William A. Handelman, M.D.
Infectious Diseases and Internal Medicine	David P. Johnson, M.D.
General Surgery	Kirk K. Kazarian, M.D.
Pathology and Hemotology	Ramon N. Kranwinkel, M.D.
Pathology	John L. Meyer, M.D.
Diagnostic Radiology	M.B. Ozonoff, M.D.
Obstetrics and Gynecology	Stewart J. Petrie, M.D.
Neurosurgery	Melville P. Roberts, M.D.
Cardiology	Michael A. Rossi, M.D.
Internal Medicine and Rheumatology	Robert T. Schoen, M.D.

CSMS Staff

Executive Director	Timothy B. Norbeck
Associate Executive Director	Josephine P. Lindquist
Director of Public Affairs	Raymond T. Sullivan
Director of Special Programs	Cameron C. Staples
Coordinator Medical Courtesy Card	Margaret K. Connelly
Membership Department	Dorothy M. Stratton
Placement Service	Valerie A. Redman
Management Information Systems	Deborah P. Titus
Accountant	Marc A. Sullivan
Secretary	Patricia A. King
Secretary	Patricia Sullivan

Terminal Care Decision Making

ALAN E. SOLINSKY, M.D.

ABSTRACT—**This study examined Connecticut physicians' attitudes and practices regarding terminal care decision making. A random sample of 500 Connecticut physicians, consisting of 250 internists, 125 surgeons, and 125 family practitioners were surveyed during 1985-1986. Forty-nine percent of the physicians responded. Eighty-six percent of physicians wrote "Do Not Resuscite" (DNR) orders, and 91% were in favor the living will, although only 36% believed that living wills would remove the liability that doctors face when withholding or withdrawing life support systems. Eighty percent would continue intravenous fluids for terminally ill patients, whereas very few would implement nasogastric feedings, respirators, blood transfusions, or renal dialysis. For the most part, internists, surgeons, and family practitioners held similar attitudes regarding terminal care. In 1985, Connecticut became the 35th state to pass right-to-die legislation. How this public policy will affect decisions made at the end of life remains to be seen.**

Introduction

The development of public policy concerning medical support for terminally ill patients is a legally and emotionally complex issue. Since the introduction of right-to-die legislation, physicians, medical ethicists, the courts, and society as a whole, have questioned its need, and its ramifications. Does right-to-die legislation decrease our value of life, or does it increase our respect for individual autonomy? For six years, the Connecticut General Assembly debated and rejected proposed right-to-die legislation. In 1985, it passed Public Act Number 85-606 "An Act Concerning Death With Dignity."[1] Section 6 of the act allows a non-pregnant person of sound mind to sign a document requesting that:

> "When I am incapacitated . . . and unable to direct my physician as to my own medical care . . . I request that I be allowed to die and not be kept alive through life support systems if my condition is deemed terminal."

Life support systems exlude provisions of nutrition and hydration according to Section 1.[1] Section 2 of the act sets forth the conditions under which a physician or medical facility may remove a life support system from an incompetent, terminally ill patient without liability. Removal may occur provided it is based on the best medical judgment of the attending physician, and that informed consent has been obtained from the next of kin, legal guardian, or as a patient's directive in the form of a previously signed document.

The living will is a statement that directs physicians to act in certain ways during the terminal phase of the patient's illness when the patient may no longer be competent. It is a directive from patient to physician prescribing how the physician is to provide, or not provide medical care. It allows the patient autonomy in deciding the extent of the medical interventions he would want for himself. Ideally it reduces suffering, lowers hospital costs, and assists the physician and family in making decisions about the measure of care for the dying patient.

The ethical, medical, and legal issues surrounding terminal care decision-making are complex and charged with emotion. It is both timely and important to study these issues in light of the increasing medical technology available for the care of the terminally ill. A survey of the general public, conducted between January 22-28, 1985 by the Institute for Social Inquiry at the University of Connecticut, showed that 85% of 500 Connecticut adults who responded favored right-to-die legislation.[2] This correlates closely with the results of this study, which showed that 91% of Connecticut physicians favor the living will. Seventy-three percent of 1510 adults polled in 1986 by the American Medical Association[3] favored "withdrawing life support systems, including food and water from hopelessly ill or irreversible comatose patients if they or their family request it."

In the present study, an effort was made to ascertain the views of Connecticut physicians with regard to terminal care decision-making. To do this, a questionnaire was prepared to answer the following questions:

- Do physicians write "Do Not Resuscitate" orders, and if so under what circumstances and with whose consent?
- In terminally ill patients, do physicians prescribe narcotics that will relieve pain but at the same time may hasten death?

ALAN E. SOLINSKY, M.D., Intern at Hartford Hospital, Hartford, CT. Dr. Solinsky is a 1986 graduate of the University of Connecticut School of Medicine, Farmington, CT.

- Are physicians in favor of the living will?
- Do physicians believe that living wills remove the liability they face when withholding or withdrawing life support systems?
- Do physicians consent to the requests of competent and incompetent terminally ill patients for removal of life support?
- Do physicians consent to the requests of competent and incompetent terminally ill patients for the administration of lethal drugs?
- Do physicians believe it should be legal or is morally acceptable to administer a lethal drug?

A case study was presented within the questionnaire to determine physician utilization of DNR orders, nutrition, medication, oxygen, blood transfusions, and renal dialysis in terminally ill patients. The study also examined whether decision making is affected by specialization, religious belief, gender, length of time in practice, or by frequency of dealing with terminally ill patients.

Methods

The study surveyed 500 Connecticut physicians including 250 internists, 125 surgeons, and 125 family practitioners, as it is these physicians who deal most frequently with the dilemmas of terminal care decision-making. They were selected randomly from a statewide list of 3300 physicians. In September 1985, each of 200 physicians received a questionnaire that remained unsigned, a cover letter, and a postage-paid envelope. Seventy-six physicians responded and there was no follow-up. Because of the favorable response, 300 additional physicians were sent a slightly expanded questionnaire and one written follow-up, to which there were 148 responses.

The two-page questionnaire took five minutes to complete and inquired about demographic characteristics, gender, specialization, number of years in practice, number of terminally ill patients cared for, number of DNRs written, the influence of religious belief and hospital policy upon writing DNRs, prescribing narcotics for dying patients, attitudes towards the living will, and awareness of Connecticut's "Death With Dignity" Act. Two case studies were presented to assess physicians' attitudes toward patient autonomy and family directives and their practices regarding implementation of nutrition, medication, oxygenation, and "extraordinary means." Comments were encouraged.

Despite the questionnaire's sensitive nature, 49% of 453 physicians responded. Forty-seven subjects were excluded because they had moved, changed specialties, had not recently practiced, or had not completed the questionnaire.

Results

Do Not Resuscitate Orders (Tables 1 and 1a)

Eighty-six percent of the 224 physicians responding write DNR orders. Physicians treating an average of ten terminally ill patients yearly were most likely to write DNR orders, 95%. Female physicians and those for whom religious beliefs influenced their decision were the least likely to write DNR orders, 74% and 76% respectively. The average number of DNRs written during the careers of the physicians surveyed was 23, with a range of 0-200. Physicians influenced by religious belief, and female physicians wrote fewer DNRs, 14 and seven respectively. The circumstances that physicians cited most frequently for writing DNR orders included: patient or family request at the end of life, diminished quality of life, and intractable pain. Consent is nearly always gathered from the patient and/or family. One physician's consent protocol was: "Firstly the patient if he is rational, secondly the spouse if living, thirdly the children, and fourthly the legal representative."

Narcotic Administration (Tables 1 and 1a)

Seventy-eight percent of the physicians would prescribe narcotics that would relieve pain and at the same time might hasten death in their terminally ill patients. Female physicians, young physicians, and those treating the greatest number of terminally ill patients are the most likely to prescribe narcotics, 87%, 83% and 83% respectively. In supporting narcotic use physicians commented:

> "If a short time of survival is anticipated, comfort is more important than the risk of hastening the inevitable."
>
> "A doctor should provide comfort and dignity to the dying patient by relieving pain."
>
> "I cannot stop death; my primary role as a physician is to relieve suffering; if death is hastened, this is an acceptable side effect."

On the other hand, a physician opposing narcotic administration that might hasten death commented: "Narcotic levels should not be reached that hasten death, for one cannot foresee developments in medical science."

The Living Will (Tables 1 and 1a)

Ninety-one percent of all physicians were in favor of the living will. A greater percentage of internists (95%) were in favor of the living will than were surgeons (82%). Eighty-five percent of 500 Connecticut adults responding to a 1985 poll conducted by the Institute for Social Inquiry at the University of Connecticut favored right-to-die legislation.[2]

The number of years in practice and the number of terminally ill patients treated each year did not influence the support of living will legislation among respondents. All 15 female physicians were in favor of the living will; only 80% of the 25 physicians whose decisions to write DNR orders were influenced by religious belief favored the living will.

Physicians in favor of the living will cited patient autonomy, fostering open communication, and giving guidance to physicians and families as reasons for supporting the living will. With regard to patient *autonomy*, physicians said:

> "The ultimate decision about continuation of life, particularly when the patient is terminally ill, should be the patient's."

Table 1

DECISIONS AT THE END OF LIFE

						No. yrs. in practice			No. terminal pts./yr.		
		All Physicians N=224/453	*Internists N=129*	*Surgeons N=57*	*Gen./Fam. Practice N=38*	*0-7 yr mean=3 N=74*	*8-22 yr mean=14 N=77*	*23+ yr mean=34 N=73*	*0-5 pt mean=3 N=69*	*6-15 pt mean=10 N=71*	*16+ pt mean=36 N=72*
Do you ever write "Do Not Resuscitate" or "No Code" orders?	Yes	86%	89%	80%	87%	87%	84%	80%	77%	95%	81%
	No	10%	9%	11%	10%	5%	8%	15%	13%	4%	8%
	?	4%	2%	9%	3%	8%	8%	5%	10%	1%	11%
In a terminally ill patient, will you prescribe narcotics that will relieve pain and at the same time might hasten death?	Yes	78%	81%	75%	74%	83%	74%	78%	76%	72%	83%
	No	17%	14%	20%	23%	12%	20%	18%	14%	23%	13%
	?	5%	5%	5%	3%	5%	6%	4%	10%	5%	4%
A living will is a document expressing a person's wishes for treatment at the end of life. Are you in favor of the living will?	Yes	91%	95%	82%	92%	88%	92%	90%	92%	90%	88%
	No	5%	2%	13%	3%	8%	4%	5%	1%	7%	8%
	?	4%	3%	5%	5%	4%	4%	5%	7%	3%	4%
Do you believe that living wills would remove the liability that doctors face when withholding or withdrawing life support systems?	Yes	36%	33%	34%	48%	29%	31%	44%	34%	35%	27%
	No	54%	58%	53%	39%	60%	53%	47%	42%	51%	66%
	?	10%	9%	13%	13%	11%	16%	9%	24%	14%	7%
*Are you aware that Connecticut has a "Death With Dignity" Act?	Yes	57%	57%	51%	67%	52%	59%	64%	58%	50%	62%
	No	43%	43%	49%	33%	48%	41%	36%	42%	50%	38%
Approximately how many times have you written "Do Not Resuscitate" orders during your career?	No.	23	22	28	21	19	21	19	8	16	29
	Range	0-200	0-200	0-200	0-100	0-200	0-50	0-100	0-30	0-80	0-200
Average number of terminally ill patients treated each year	No.	16	17	16	16	19	15	15	—	—	—
	Range	0-100	0-100	0-100	0-100	0-200	0-35	0-100			
Average number of years in practice	No.	16	13	18	23	—	—	—	18	14	16
	Range	0-54	0-47	0-54	0-46				1-46	0-35	0-37

Results based upon responses from 224 physicians (of 453)
*Results based upon responses from 148 physicians (of 274)
? = undecided or not applicable

> "When still alert and able to make a decision, a patient of sound mind should express his wish as to his future care."

Physicians also view living wills as vehicles for opening *communication*:

> "It allows the patient and doctor to discuss the topic when the patient is well and not under duress."

> "By expressing a patient's wishes before a crisis, it can alleviate controversy when the patient is too ill to communicate his wishes."

Living wills also have the potential to lend *guidance* to families and physicians:

> "They afford direction and guidance to the physician by the most important person, rather than depending on multiple family members where uncertainty and opposing viewpoints may surface."

Physicians opposed to the living will stated:

> "No living wills. Our basic concepts would have to change. We are dedicated to saving lives."

> "Some individuals may change their minds when confronted with terminal illness. Very few people can actually predict what their choices would be in that situation."

> "The patient's condition changes from day to day, even hour to hour."

A physician in favor of the living will does not view a change of mind as a reason not to have living wills: "If the patient is well enough to recant, it should be reversible. If the patient is not that well, previous wishes should prevail."

Liability (Tables 1 and 1a)

Although 91% of physicians favored living wills, only 36% believed that living wills would remove the liability that doctors face when withdrawing or withholding life support systems. Thirty-three percent of internists, 34% of surgeons, and 48% of family practitioners believed that living wills would remove liability. Female physicians, family practitioners, and physicians practicing the longest and treating the fewest number of patients were more likely to believe that living wills would remove liability. Fifty-four percent maintained they would not remove liability, the greatest percentage being those who treat the most terminally ill patients. Ten percent of physicians were undecided. The 36% who believed that living wills would remove physician liability when withholding or withdrawing life support systems cited individual autonomy, death being a non-judicial matter, and fostering communication with patient and family as supporting their position.

> "Living wills express the patient's wish and it is the doctor's duty legally and morally to carry it out."

Table 1a
DECISIONS AT THE END OF LIFE

		Physicians *N=148/274*	*Female Physicians* *N=15*	*+ Infl. of Religious Belief* *N=25*	*+ Infl. of Hospital Policy* *N=50*	*+ Resident Training Program* *N=89*
Do you ever write "Do Not Resuscitate" or "No Code" orders?	Yes	82%	74%	76%	88%	81%
	No	13%	26%	20%	12%	16%
	?	5%	0%	4%	0%	3%
In a terminally ill patient, will you prescribe narcotics that will relieve pain and at the same time might hasten death?	Yes	80%	87%	84%	82%	79%
	No	16%	13%	16%	16%	17%
	?	4%	0%	0%	2%	4%
A living will is a document expressing a person's wishes for treatment at the end of life. Are you in favor of the living will?	Yes	91%	100%	80%	92%	88%
	No	6%	0%	20%	8%	12%
	?	3%	0%	0%	0%	0%
Do you believe that living wills would remove the liability that doctors face when withholding or withdrawing life support systems?	Yes	39%	67%	36%	45%	34%
	No	55%	26%	56%	55%	63%
	?	6%	7%	8%	0%	3%
Are you aware that Connecticut has a "Death With Dignity" Act?	Yes	57%	60%	60%	62%	56%
	No	43%	40%	40%	38%	44%
Approximately how many times have you written "Do Not Resuscitate" orders during your career?	No.	23	7	14	13	30
	Range	0-200	0-11	0-50	0-100	0-200
Average number of terminally ill patients treated each year	No.	15	13	16	16	17
	Range	0-100	0-100	0-100	0-100	0-100
Average number of years in practice	No.	17	12	13	14	14
	Range	0-54	1-45	0-39	0-39	0-30

Results based upon responses from 148 physicians (of 274)
? = undecided or not applicable

> "It's time individuals have a right to control their final days and not the lawyers."

> "If there is a living will, the doctor, patient, and family share in liability."

The 54% of physicians who believed that living wills would not remove liability mentioned proper medical care, courts of law, lawyers, family members, and revocability of the document as their reasons. Regarding *proper medical* care, physicians said:

> "The will should be a guide, but it remains for the M.D. to analyze all the factors and decide the best course of care in association with all others involved."

> "M.D.'s must still operate within the legal aspects and morality of the practice of medicine. A patient's desire to end his or her life by interfering with proper medical care is not binding."

Court action was a reason many physicians did not believe living wills would remove liability.

> "The legal system holds us liable for everything, no matter what. Living wills would simply throw more legal complications into the system."

> "A living will will not carry enough weight to take the risk of being sued in court by honoring it."

Fear of *lawsuits* was a common concern:

> "Living wills are morally and ethically justified. However, there is no doubt lawyers would have a field-day and another source of revenues."

Unpredictability of family members was another concern:

> "Living wills work only when all interested parties (M.D., nurses, family members) agree. Otherwise the possibility of 'calling off the dogs' too early exists, which would lead to the potential for more lawsuits."

> "Prosecutors and family members are too unpredictable and litigious."

Summarizing the attitudes of most physicians regarding liability, a family practitioner commented:

> "The issue of liability is very complex and a living will does not protect the physician, though it is likely to be supportive of a physician's actions so long as the physician was not negligent otherwise, did not constrain the desire of the patient or the patient's guardians, was compliant to hospital bylaws, and had not violated state or federal laws."

Withdrawing Extraordinary Life Support (Tables 2 and 2a)

Ninety-seven percent of all physicians would consent to a terminally ill patient's request that he be allowed to die without the intervention of extraordinary life support. A lower percentage, 93% would consent to an incompetent terminally ill patient's request to die with extraor-

Table 2
WITHDRAWING EXTRAORDINARY LIFE SUPPORT

					No. yrs. in practice			*No. terminal pts./yr.*		
Would you consent to the patient's request?	*All Physicians N=224/453*	*Internists N=129*	*Surgeons N=57*	*Gen./Fam. Practice N=38*	*0-7 yr mean=3 N=74*	*8-22 yr mean=14 N=77*	*23+ yr mean=34 N=73*	*0-5 pt mean=3 N=69*	*6-15 pt mean=10 N=71*	*16+ pt mean=36 N=72*
1. A competent, terminally ill patient requests that he be allowed to die without the intervention of extraordinary life support.	97%	97%	97%	97%	99%	98%	95%	94%	98%	99%
2. An incompetent terminally ill patient requests, only by means of a previously written living will, that he be allowed to die without the intervention of extraordinary life support. The family approves.	93%	94%	84%	89%	97%	87%	82%	87%	89%	96%
3. A competent terminally ill patient requests that a physician end his life by administering a lethal drug.	1%	1%	2%	3%	3%	0%	3%	3%	3%	1%
4. An incompetent terminally ill patient requests, only by means of a previously written living will, that a physician end his life by administering a lethal drug. The family approves.	1%	1%	2%	3%	3%	0%	3%	3%	3%	1%
Do you think numbers 3 and 4 should be legal?	15%	14%	21%	16%	13%	15%	23%	24%	14%	10%
Do you think numbers 3 and 4 are morally acceptable?	24%	25%	23%	24%	24%	19%	32%	34%	11%	20%
*Does hospital policy influence your writing "Do Not Resuscitate" orders?	37%	34%	44%	38%	38%	49%	28%	24%	57%	31%
*Does your religious belief influence your decision to write or not write "Do Not Resuscitate" orders?	18%	16%	23%	13%	24%	18%	11%	16%	20%	20%

Table indicates the percentage of respondents indicating "yes"
Results based upon responses from 224 physicians (of 453)
*Results based upon responses from 148 physicians (of 274)

dinary life support, provided the request is made by a living will with the family's approval. This concept was supported most strongly by internists, 94%; physicians in practice fewer than seven years, 97%; and physicians treating 16 or more terminally ill patients, 96%. Surgeons and those practicing longer were least likely to approve. Commenting on this approach to the terminally ill patient, one physician said:

> "When the quality of life is so poor that it is not worth living and there is no hope of recovery, the patient should be allowed to die a normal and dignified death without a lot of medical interference."

Administration of a Lethal Drug (Tables 2 and 2a)

Only 1% of all physicians would consent to a terminally ill patient's request or his desire expressed in a living will, for a lethal drug to end his life. Two of 15 female physicians, 13%, supported this concept. Said one physician:

> "The M.D. should never be an executioner; society's perception of M.D.'s would become negative."

Fifteen percent of physicians believe it should be legal to administer a lethal drug to a terminally ill patient requesting the drug. Fourteen percent of internists, 21% of surgeons and 16% of family practitioners favored legalization of drug-induced active voluntary euthanasia. Table 2 shows that 23% of all physicians practicing for 23 years or more believe this should be legal, as opposed to 13% and 15% of the physicians with only 0-7 years and 8-22 years of medical experience, respectively. Twenty-four percent of physicians treating fewer than five terminally ill patients per year approved of legalization, versus 10% of physicians seeing more than 16 patients per year. Twenty-seven percent of female physicians supported legalization and only 4% of physicians influenced by religious belief favored legalization.

Morality of Administering a Lethal Drug (Tables 2 and 2a)

Twenty-four percent of physicians found it morally acceptable to administer a lethal drug to terminally ill patients requesting so. Thirty-two percent of physicians practicing more than 23 years and 34% of physicians treating fewer than five terminally ill patients per year found lethal drug administration to be morally acceptable for a terminal patient seeking it. This was greater than for the physicians practicing for shorter periods of time or treating more terminally ill patients. Forty percent of female physicians found this practice to be morally acceptable. Only 16% of the physicians influenced by religious belief saw the administration of lethal drugs to

Table 2a

WITHDRAWING EXTRAORDINARY LIFE SUPPORT

Would you consent to the patient's request?	*Physicians N=148/274*	*Female Physicians N=15*	*+ Infl. of Religious Belief N=25*	*+ Infl. of Hospital Policy N=50*	*+ Resident Training Program N=89*
1. A competent, terminally ill patient requests that he be allowed to die without the intervention of extraordinary life support.	98%	100%	92%	96%	96%
2. An incompetent terminally ill patient requests, only by means of a previously written living will, that he be allowed to die without the intervention of extraordinary life support. The family approves.	91%	100%	80%	94%	91%
3. A competent terminally ill patient requests that a physician end his life by administering a lethal drug.	1%	13%	0%	2%	2%
4. An incompetent terminally ill patient requests, only by means of a previously written living will, that a physician end his life by administering a lethal drug. The family approves.	1%	13%	0%	2%	2%
Do you think numbers 3 and 4 should be legal?	15%	27%	4%	10%	12%
Do you think numbers 3 and 4 are morally acceptable?	22%	40%	16%	10%	21%
Does hospital policy influence your writing "Do Not Resuscitate" orders?	37%	20%	44%	–	44%
Does your religious belief influence your decision to write or not write "Do Not Resuscitate" orders?	18%	13%	–	22%	21%

Table indicates the percentage of respondents indicating "yes"
Results based upon responses from 148 physicians (of 274)

be morally acceptable. A greater number of physicians found it to be morally acceptable to administer a lethal drug than did the number who favored legalization of such action. One physician commented:

> "Morally there are certain terminally ill patients who have so intense suffering that I feel active euthanasia would be acceptable."

Influence of Religious Belief, Hospital Policy, Hospital Training Programs, and Gender (Tables 1a, 2, 2a)

Eighteen percent of physicians were influenced by religious belief when it came to writing DNR orders. Twenty-four percent of physicians practicing less than seven years were influenced, whereas only 11% of those practicing more than 23 years were. Hospital policy influenced the writing of DNR orders for 37% of all physicians. Hospital policy influenced 44% of surgeons, and greatly influenced younger physicians and those treating an average of ten terminally ill patients per year.

As a group, women physicians opted to write DNR orders less frequently than did other categories of physicians, 74%. On the other hand, 100% of the female physicians favored living wills and 67% of them believed they would remove liability. They were most likely to prescribe narcotics for pain relief, 87%; and in addition were most likely to comply with lethal drug requests by terminally ill patients, and not one favored using a respirator in a terminally ill patient. It should be noted, however, that there were only 15 female physicians in the survey.

Physicians influenced by religious belief were less likely to write DNR orders, 76%, to call for legalization of lethal drug administration, and were more invasive in the case study as were physicians influenced by hospital policy.

Physicians admitting to hospitals with residency training programs made terminal care decisions in much the same way as other physicians.

Case Study (Tables 3 and 3a)

A case study was presented to physicians to ascertain their medical care decisions for an 82-year-old female in an irreversible coma following a myocardial infarction and suffering multi-system failure. Her family had requested that she be made as comfortable as possible. Physician utilization of DNR orders, intravenous fluids, nasogastric feedings, medications, oxygen, blood transfusions, and dialysis were examined.

Ninety-five percent of all physicians wrote for a "no code" order. Regarding nutrition, 80% of all physicians favored continuation of IV fluids. A far lower percentage of physicians, 17% ordered nasogastric feedings for

Table 3
CASE STUDY

Mrs. Smith is an 82-year-old female with a history of chronic obstructive lung disease, hypertension, and chronic renal failure. She is admitted to the hospital on January 1 with pneumonia. She is alert. You give her intravenous fluids and antibiotics. On January 2, she suffers a myocardial infarction, receives CPR, and lapses into an irreversible coma. The family understands the situation and requests that you make the patient's last days as comfortable as possible.

					No. yrs. in practice			*No. terminal pts./yr.*		
Respond as if you were the attending physician to this long time patient.	*All Physicians N=224/453*	*Internists N=129*	*Surgeons N=57*	*Gen./Fam. Practice N=38*	*0-7 yr mean=3 N=74*	*8-22 yr mean=14 N=77*	*23+ yr mean=34 N=73*	*0-5 pt mean=3 N=69*	*6-15 pt mean=10 N=71*	*16+ pt mean=36 N=72*
Will you write a "No Code" order?	95%	95%	92%	95%	95%	97%	88%	94%	96%	93%
Will you continue the IV fluids?	80%	77%	78%	89%	88%	83%	66%	76%	86%	80%
She cannot eat, will you order nasogastric feedings?	17%	21%	7%	16%	20%	18%	13%	17%	25%	10%
Will you continue the antibiotics?	43%	50%	25%	39%	49%	44%	35%	45%	42%	42%
Will you continue the antihypertensive medications?	35%	40%	23%	34%	45%	39%	22%	34%	36%	39%
Her blood 0_2 levels are low; will you continue to order a 6 hour arterial blood stick?	3%	3%	0%	8%	1%	0%	4%	0%	2%	2%
Will you tie down her hands to prevent her from pulling off her 0_2 mask?	24%	23%	20%	32%	26%	24%	24%	24%	26%	24%
She requires a respirator to breathe; will you connect her to one?	10%	7%	15%	11%	7%	3%	20%	7%	10%	12%
Her blood count is very low; will you order a transfusion?	6%	6%	6%	8%	5%	7%	6%	0%	11%	8%
Her kidneys have shut down; will you order dialysis?	1%	1%	4%	0%	3%	0%	1%	0%	4%	0%

Table indicates the percentage of respondents answering "yes"
Results based upon responses from 224 physicians (of 453)

this patient. Only 66% of physicians practicing for more than 23 years continued the IV and only 7% of surgeons ordered NG feedings. Concerning medications, 43% of physicians favored continuation of antibiotics to treat the patient's pneumonia, and 35% of physicians chose to continue her antihypertensive medications. Fewer surgeons and physicians practicing more than 23 years chose to continue the medications.

Few physicians aggressively monitored or sought to improve the patient's respiratory status. Three percent of physicians ordered arterial blood gas monitoring at six-hour intervals. Twenty-four percent gave orders to restrain the patient from removing the oxygen mask, and 10% chose to connect the patient to a respirator. It should be noted that a higher percentage of those practicing more than 23 years and treating more than 16 terminally ill patients chose to manage aggressively this terminally ill comatose patient's respiratory condition. Only 6% of physicians ordered blood transfusions for the patient's anemic condition. Only three physicians, 1%, chose to order renal dialysis for the patient. Written responses indicated that treatment initiation was a concern:

> "It is always difficult to remove therapy once begun. It is far easier not to start it in the first place."
>
> "I can see the value of artificially ventilating a patient in the hope it would be beneficial. If it is not, one must have the courage to turn it off. But it is better to err on the side of starting treatment if there is a chance of it being helpful rather than forego the treatment because one is not courageous enough to abandon the futile treatment."

To summarize the attitudes of most, one physician said:

> "There is no yes or no answer to these treatment decisions. A living will does help by clearly stating the patient's wishes to the family who may be reluctant to discontinue life support on their own due to guilt of 'killing' the patient. Physicians have an obligation to relieve suffering. When hope of restoring a patient to health and viability is past, there is an obligation to patient, family, and society to let him die. Physicians have an obligation to explain this to families and help them understand the need and humaneness of withholding or discontinuing treatment in certain situations."

Discussion

Terminal care decision making is fraught with ethical dilemmas and medical and legal uncertainties. Although there are extensive published commentaries on the subject, legal precedents, and "natural death acts" in 80% of the states, physicians confronted with actual cases do not always have concrete guidelines to follow. This study evaluated the level of medical care that physicians utilize at the end of life. It quantitatively and qualitatively evaluted physicians' attitudes and practices regarding DNR

Table 3a
CASE STUDY

Mrs. Smith is an 82-year-old female with a history of chronic obstructive lung disease, hypertension, and chronic renal failure. She is admitted to the hospital on January 1 with pneumonia. She is alert. You give her intravenous fluids and antibiotics. On January 2, she suffers a myocardial infarction, receives CPR, and lapses into an irreversible coma. The family understands the situation and requests that you make the patient's last days as comfortable as possible.

Respond as if you were the attending physician to this long time patient	*Physicians N=148/274*	*Female Physicians N=15*	*+ Infl. of Religious Belief N=25*	*+ Infl. of Hospital Policy N=50*	*+ Resident Training Program N=89*
Will you write a "No Code" order?	94%	100%	96%	96%	93%
Will you continue the IV fluids?	79%	93%	88%	90%	85%
She cannot eat, will you order nasogastric feedings?	17%	13%	20%	18%	19%
Will you continue the antibiotics?	41%	27%	44%	46%	41%
Will you continue the antihypertensive medications?	34%	33%	36%	44%	37%
Her blood 0_2 levels are low; will you continue to order a 6 hour arterial blood stick?	2%	0%	0%	4%	1%
Will you tie down her hands to prevent her from pulling off her 0_2 mask?	21%	0%	24%	20%	25%
She requires a respirator to breathe; will you connect her to one?	8%	0%	8%	18%	8%
Her blood count is very low; will you order a transfusion?	7%	7%	8%	8%	5%
Her kidneys have shut down; will you order dialysis?	1%	0%	4%	2%	1%

Table indicates the percentage of respondents answering "yes"
Results based upon responses from 148 physicians (of 274)

orders and living wills as influenced by medical specialty, experience, gender, hospital policy, and religious beliefs.

Despite medical technology that prolongs life through the use of mechanical ventilators, drugs and artificial feedings, many illnesses still remain irreversible. Bedill et al[4] in a study of 521 patients who had cardiopulmonary arrest, and Cameron et al[5] in a similar study of 133 patients, found that 76% and 77% respectively of DNR orders were written without patient participation, because of abnormal mental status due to dementia, encephalopathy, or coma. They concluded that, when possible, patients with a terminal, progressive, or irreversible illness should be encouraged to discuss, before hospitalization, whether they would want to be resuscitated in the event of cardiac arrest. This study of physicians and a poll of 500 non-physicians in Connecticut[2] showed that 91% and 85% respectively favor living wills to facilitate this type of communication between physician, patient, and family, prior to the terminal event.

In a study of DNR order utilization at a large city hospital, Landwirth[6] found that patients with malignant disease, abnormal mental status, and increased age were more likely to be designated DNR. He found that 70-75% of patients who died had received a DNR order. Patients were involved in DNR decisions in only a minority of cases, although documented family involvement occured in 85% of cases, and physician compliance with hospital documentation rules was over 80%. Zimmerman et al[7] studied 7,265 Intensive Care unit admissions and found that 39% of all in-unit deaths were preceded by DNR orders, with 94% of the patients with DNR orders dying in the hospital 1.7 days, on average, after the DNR order was written.

In actual practice, Landwirth[6] found that patients who are designated DNR often have other support modalities withheld, which tend to be less well documented in patient charts. Zimmerman et al[7] found that additional therapies such as blood transfusions, dialysis, and ventilators were withheld in 68% of those patients with DNR orders. This suggests that physicians sometime eliminate or gradually reduce medical care for hopeless patients once it becomes evident that nothing can be done to revive cognitive function, even though biological function could continue indefinitely. This is consistent with Elliot's[8] concept of treatment directed at symptom relief which she labels "supportive care only," "limited plan" or "palliative care."

Along with medical advances, there has been an increase in the role that patients have in making treatment decisions. The principle of self-determination stems in part from American jurist Benjamin Cardozo's legal opinion that, "Every human being of adult years and sound mind has a right to determine what shall be done with his own body."[9]

Early court decisions to forego life sustaining treatment, such as the Quinlan case, dealt with mechanical ventilation. In subsequent years, there has been a shift to encompass removal of other therapies such as dialysis, antibiotics, chemotherapy, and, most controversially, feeding tubes and IV fluid administration.

Recent state court decisions have focused attention on the extent to which it is ethically and legally permissible to withhold or to withdraw artificial nutrition and hydration from critically ill patients. The feeding issue was first presented in the courts in 1983 in Barber *v* Superior Court [10] during which a California appelate court ruled that artificial feeding and hydration through a nasogastric tube was equivalent to artificial ventilation through respirtators and could likewise be discontinued. In the Matter of Claire Conroy, [11] the New Jersey Supreme Court in 1985 authorized the removal of artificial feeding from patients in whom there was no hope of recovery. The Florida decision in Corbett *v* D'Allesandro found no reason to differentiate between the multitude of artificial devices available to prolong life. The Brophy *v* New England Sinai Hospital case, [12] decided by the Massachusetts Supreme Court, found that Paul Brophy, a victim of a subarachnoid hemorrhage, who had been in a "persistent vegetative state" for 3½ years, could be allowed a "natural death with dignity" by stopping his artificial nutrition. The court affirmed the individual's right to privacy and autonomy over the state's interest to protect life.

There has been a concern that the failure to provide food and water through plastic tubing is in some deeply symbolic way different from the cessation of other medical treatments. There are an estimated 10,000 patients with irreversible coma in this country currently institutionalized. [13] This raises the question of whether life-preserving medical treatment, once begun, can be withdrawn from patients when there is no hope of recovery. Micetich's study, [14] found that 73% of physicians would attempt to provide hydration and electrolyte support even for a comatose patient dying of an untreatable painful malignant neoplasm. In this study, 80% of physicians opted to provide hydration for a terminally ill comatose patient.

During 1986, three additional right to die cases were brought before the New Jersey Supreme Court. In the Matter of Nancy Ellen Jobes, [15] the court will determine if it is lawful for a 29-year-old female in a persistent vegetative state to have artificial feeding removed. In the Matter of Hilda Peter, the court will decide whether an ombudsman was correct when he declined to grant permission for removal of a feeding tube from a comatose woman who had previously signed a living will with such a request. In the Matter of Kathleen Farrell, the court will decide whether a 37-year-old mother with amyothrophic lateral sclerosis would have had a right to removal of a respirator had she not died during the court procedures. The Peter and Jobes cases involve substituted judgment and the Farrell case involves a decision by a competent but terminal patient to ask for the removal of life support, knowing it might hasten death.

In 1986 the AMA Council on Judicial and Ethical Affairs issued a ruling that is ethical to remove all forms of life support, including artificial hydration, from hopeless patients when the family and physician agree. [16] The policy is in line with the 1983 President's Commission report on ethical problems in medicine, which concluded that artificial feeding should be treated as other forms of medical treatment. [17]

There are several important findings in this study. First, DNR orders have become an important tool in decision making at the end of life. The DNR order is utilized in accordance with patient and family requests at the end of life; the decision is based upon quality of life anticipated as well as present pain and suffering. Consent is *nearly* always obtained from the patient, or family, or both.

A second finding is that the concept of the living will is supported by 91% of Connecticut physicians. However, only 57% of physicians in this sample were aware of Connecticut's "Death With Dignity" Act. Increased patient autonomy and facilitation of communication between physician, patient, and family are noted frequently as reasons to support living wills.

The third finding of this study is that 54% of Connecticut physicians believe that living wills would not remove the liability that doctors face when withholding or withdrawing life support systems. Lawsuits, proper medical management, revocability of the document, and unpredictability of family members were cited as concerns.

A fourth finding is that 78% of physicians favor prescribing narcotics to patients to relieve pain, although death may be hastened. Comfort, quality of life, and dignity were most commonly mentioned as reasons to support narcotic administration.

A fifth finding of this investigation is that whether a patient is competent or incompetent makes very little difference in the withdrawal or withholding of life support providing there is a living will and/or family approval.

A sixth finding is that, whereas physicians do not practice active voluntary euthanasia, 24% believe it is morally acceptable and 15% favor its legalization.

A seventh finding of this study is that there are very few differences in treatment decisions for terminally ill patients among Connecticut internists, surgeons, and family practitioners. The length of time in practice and the number of terminally ill patients treated per year somewhat influenced physicians' attitudes and practices.

An eighth finding is that women physicians appear to write fewer DNR orders, yet 100% of them favored the living will, were most likely to prescribe narcotics, and would morally support lethal drug requests for terminally ill patients. There were, however, only 15 women physicians in the sample.

A ninth finding brought out by the case study is that terminal care decision making is influenced by the levels of invasiveness of the procedure. Physicians find that there is a clincially relevant difference in the administration of nutrition by intravenous and by nasogastric tube. Eighty percent chose to run an intravenous for the patient, but only 17% placed a nasogastric tube. The provision of oxygen through a respirator is favored by few physicians, 10%; blood transfusions and renal dialysis are favored by even fewer. Antibiotic and antihypertensive medications were continued by less than half of the physicians.

The study shows that Connecticut physicians widely support living will legislation, the use of DNR orders, pain medications and palliative care for terminally ill patients both as public policy and for patients in their own practice. Several policy conclusions can be drawn from these findings:

1. DNR orders should be based on the patient's clinical condition, patient's request, and family's request.
2. Living wills serve to increase patient autonomy and facilitate communication between physician, patient, and family.
3. Physicians will be more likely to abide by living wills if they are found to be upheld by the courts.
4. The use of narcotics to alleviate suffering is commonly practiced, even though death may be hastened.
5. Only a minority of physicians hold active voluntary euthanasia to be morally acceptable and favor its legalization.

There are several weaknesses of the Connecticut "Death With Dignity" Act, including its focus on removing physician liability rather than supporting patient autonomy, excluding withholding of nutrition and hydration, and giving veto power to next of kin. Guidelines should consider the ethically relevant question to be whether the treatment modality has a reasonable chance of providing benefits that outweigh the burdens.[17] Devoting more medical resources to a particular illness is not always better than devoting less, and the quality of life of a hopelessly ill person must be considered in determining how much treatment to administer. In Healey's view[18] there are circumstances in which the use of medical procedures is neither legally nor ethically required. Doctors, according to Healey, have legal and ethical obligations to use their skills to enhance the well-being of their patients and to use technological innovations as instruments of compassionate care to enhance their patients' well being, assuring that the benefits outweigh the burdens.

Many of the moral problems raised about care of the dying patient are engendered by the dual role of physicians as savers of lives and comforters of the dying. If the doctor is to avoid what is burdensome for the patient and is to respect his wishes, what is he to do if he knows that the patient wants to die more quickly than is likely in the natural course of the illness? May he hasten death with an opiate that will control pain but may hasten death?[19] The philosophic argument of "double effect" may be used here: the intended effect is to relieve pain and an allowable effect is the shortening of life.

Active euthanasia is the direct and deliberate killing of a terminally ill person in order to end suffering. If the doctor is prepared to accept responsibility for shortening life in the course of alleviating suffering, should he alleviate suffering by the deliberate administration of a lethal dose? Such action may be opposed on both philosophical and legal grounds by drawing a distinction between causing harm and permitting harm to occur.

Killing a patient is an act against the law, whereas failure to preserve life may be regarded as an omission, which, depending upon the nature of the omission, may or may not carry criminal liability. Practical objections to legislation allowing voluntary active euthanasia include: difficulty in ensuring that the request is valid, the morality of the act under any conditions, and the implications for the relationship between patients and their doctors and nurses. At the other end of the spectrum, advocates of active euthanasia see no objection to ending lives of terminally ill suffering patients who are of no value to themselves or society. Between these two opposing attitudes are those physicians who would retain legal sanctions against it, but who in some instances might disregard the law.

The admission of a seriously ill patient to the hospital often raises the question of how aggressive to be in the event of deterioration of the patient's condition. At least four situations raise questions about the unnecessary prolongation of life:

1. Emergency resuscitation after cardiac arrest, or in the midst of trauma.
2. Treatment of pulmonary infections in patients with painful terminal illnesses or brain injury.
3. Continuation of artificial life suport for patients with extensive brain injury.
4. Treatment of severe pain in terminal illness using drugs which may shorten life.

Discussing death presents a difficult problem in interpersonal communication. Decisions have to be made in advance since the actual situation leaves little time for deliberation. An expression of sincere concern is often the best medicine for the terminally ill patient and his family. To quote Peabody, "-for the secret of the care of the patient is in caring for the patient."[20]

Acknowledgement: The author wishes to thank J. Lewis, Ph.D., J. Healey, J.D., S. Solinsky, R.N., and his parents for their helpful suggestions and encouragement.

REFERENCES

1. Connecticut Public Act Number 85-606, "An Act Concerning Death with Dignity," 1985.
2. Living Will Legislation. Hartford Courant. The Institute for Social Inquiry at the University of Connecticut, January 28, 1985.
3. AMA Public Opinion Survey. American Medical News, November 28, 1986, p 11.

4. Bedell SE, Pelle P, Maher PL, et al: Do not resuscitate orders for critically ill patients in the hospital: How are they used and what is their impact? JAMA 1986, 256:233-237.

5. Cameron DJ, Mermick MH: Do not resuscitate orders. JAMA 1986, 256:2677.

6. Landwirth J: Ethics and issues. Hartford Hospital Commentary Newsletter 1986, Vol 8, No 4.

7. Zimmerman JE, Knans WA, Sharpe SM, Anderson AS, Draper EA, Wagner DP: The use and implications of do not resuscitate orders in intensive care units. JAMA 1986, 255:351.

8. Elliot BA, Day TW: "Do not resuscitate" orders. JAMA 1986, 255:3114.

9. Schloendorff v Society of New York Hospital, 211 NY 125.105 NE 92,93,1914.

10. Barber v Superior Court. 147 3d 1006 (Cal App 1983).

11. In the Matter of Claire Conroy, 98 NJ 321 1985.

12. Patricia E. Brophy, guardian of Paul E. Brophy, v New England Sinai Hospital, docket 8SE009-G1, Commonwealth of Mass., The Trial Court, The Probate and Family Court Department, Norfolk Division, Oct 21, 1985.

13. Feeding withdrawal gets conditional nod. American Medical News, 3/28/86, p 11.

14. Micetich KC, Steihnecker PA, Thomasma DC: Are intravenous fluids required for a dying patient? Arch Int Med 1983, 153:975-978.

15. In the Matter of Nancy Ellen Jobes, docket c-497185E, Superior Court of New Jersey, Chancey Division, Morris County, April 16, 1986.

16. Opinion on Withholding Treatment. American Medical Associations Council on Ethical and Judicial Affairs, American Medical News, 3/28/86, p 11.

17. Deciding to Forego Life-Sustaining Treatment, 1983. President's Commission for the Study of Ethical Problems in Medicine and Biomedicine and Behavioral Research, 1983.

18. Healey JM, Artificial feeding: controlling the technological imperative. Conn Med 1986, 50:135.

19. Campbell AV, Moral Dilemmas In Medicine, 1984. Longman Group Limited, New York, p 132.

20. Peabody FW, The care of the patient. JAMA 1927, 88:877-882.

Dx: recurrent herpes labialis

"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough.**" DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits.**" MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) . . . **response** was **dramatic. HERPECIN-L** . . proven **far superior.**" DDS, PA

"All patients claimed **shorter duration . . .** at **prodromal symptoms** . . . HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

Rheumatoid Arthritis Complicated by Temporal Arteritis

JEFFREY D. URMAN, M.D. and MICHA ABELES, M.D.

ABSTRACT–Rheumatoid arthritis and polymyalgia rheumatica/temporal arteritis are two relatively common rheumatic diseases that can both affect the elderly. Despite this, there have been few well documented cases of both diseases occurring simultaneously in one individual. The multisystemic features of other either disease can mask manifestations of the other and possibly delay recognition of the presence of the second disease. This report describes a patient with rheumatoid arthritis who developed temporal arteritis with consequent loss of vision. Greater awareness of the simultaneous occurrence of these rheumatic disorders is emphasized.

Introduction

Rheumatoid arthritis (RA) can usually be differentiated from polymyalgia rheumatica (PMR) and the closely associated temporal arteritis. However, muscle aching, morning stiffness, and gelling are symptoms common to both RA and PMR. In addition, active synovitis suggestive of RA can also be seen in PMR.[1] At times, the two diseases can be very difficult to initially differentiate from each other. The purpose of this report is to describe a patient with RA who developed temporal arteritis with the symptoms of PMR masked by her RA.

Case Report

The patient is a 79-year-old, white female, initially seen in 1978 with a ten year history of symmetrical, inflammatory arthritis affecting the shoulders, wrists, small joints of the hands, hips, knees, ankles, and feet. She had significant morning stiffness and the gel phenomenon. Physical examination revealed characteristic changes of rheumatoid arthritis with marked swelling and tenderness of both wrists, metacarpophalangeal, and proximal interphalangeal joints of both hands. Both knees had obvious effusions. Hammer toe and hallux valgus deformities were present in the feet.

Pertinent laboratory results revealed a hematocrit of 31.5, rheumatoid latex titer of 1:5120, and a Westergren Erythrocyte Sedimentation Rate (ESR) of 131 mm per hour. Repeat ESR's were similarly elevated throughout her course. Synovial fluid from both knees was highly inflammatory with white blood cell counts averaging 15,000 per cubic millimeter (80% polymorpho-nuclear cells) on numerous arthrocenteses.

X-rays of hands, feet, and hips showed typical rheumatoid erosive disease. The patient continued to have active synovitis despite use of numerous non-steroidal anti-inflammatory drugs and penicillamine. On 7/4/83 she was seen for a one day history of visual blurring in the left eye that had progressively worsened over 24 hours. There was no change in any of her other rheumatic symptoms. She did have recent onset of intermittent occipital headaches which she attributed to her arthritis. Physical examination showed her to have weak light perception only in the left eye. No temporal or occipital tenderness was noted. She denied scalp pain or jaw claudication and had no worsening of her usual aching in the neck, shoulders, arms, and hips. The patient was immediately started on 60 mg of prednisone per day but did not regain vision in the left eye. Biopsy of a clinically normal left temporal artery revealed giant cell arteritis. She was eventually discharged to her daughter's care, moved from the area, and was lost to follow-up.

Discussion

Rheumatoid arthritis and polymyalgia rheumatica with or without temporal arteritis are distinct clinical entities that can both affect the elderly. Since these rheumatic diseases are not rare, one would expect to see both conditions in the same patient more frequently than has been reported. The prevalence of RA and PMR in the elderly and has been reported as high as 6.6 per 1,000.[2] Surprisingly there have been only few well documented reports of the simultaneous occurrence of seropositive rheumatoid arthritis and biopsy proven temporal arteritis in the same patient.[2,3] Permanent loss of vision occurred in two of these patients.

The patient reported here had chronic, deforming, advanced Classic Rheumatoid Arthritis as defined by the American Rheumatism Association.[4]

The warning symptoms or signs of underlying temporal arteritis in the form of occipital headaches were not thought important by her in the face of her generalized discomfort from RA. She, thus, did not feel the new onset of headaches warranted medical evaluation. Neck pain and discomfort can occur in RA when cervial spine involvement is present, whereas headaches are unusual.[5] Occipital headaches although also unusual in temporal arteritis are reported manifestations of that disease when the occipital vessels are involved.[6] It is also possible that some of the generalized aching and stiffness and the extremely high sedimentation rate may have been due in part of polymyalgia rheumatica but camouflaged by her rheumatoid disease.

Since both RA and PMR/temporal arteritis have common features such as elevated ESR, morning stiffness,

---

JEFFREY D. URMAN, M.D., Clinical Assistant Professor of Medicine, Stanford University Medical Center, Stanford, California and MICHA ABELES, M.D., Associate Professor of Medicine, Division of Rheumatology, University of Connecticut Health Center, Farmington, Connecticut.

generalized aching, and loss of mobility, it is quite possible when one of the two diagnoses is established, the physician may not think of the other. Reports also describe the frequent occurrence of clinically detectable synovitis in patients with PMR[1] making the clinical evaluation even more confusing. Thus, one must at least consider the possibility of both conditions occurring in the same patient. Those RA patients with extremely high ESR's should be particularly watched and questioned for symptoms such as recent significant worsening in shoulder or hip girdle aching and stiffness, scalp pain, jaw claudification, headaches or any change whatsoever in vision. Rather than assuming the symptoms represent an exacerbation of RA, the physician should consider the possibility of coexisting temporal arteritis. This may hopefully preclude in some patients the potential devastating sequelae of untreated temporal arteritis.

Despite awareness of these two rheumatic disorders, even the most informed physician can miss the onset of temporal arteritis in a RA patients, unless continuously alert for the possibility. There appears to be no casual relationship between RA and PMR/temporal arteritis, but instead the simultaneous occurrence of two relatively common rheumatic diseases.

REFERENCES

1. Chou C, Schumacher HR: Clinical and pathological studies of synovitis in polymyalgia rheumatica. Arthritis Rheum 1984, 27:1107-1117.
2. Hall S, Ginsburg WW, Vollertsen RS, et al: The coexistence of rheumatoid arthritis and giant cell arteritis. J Rheumatol 1983, 10:995-997.
3. Petersen KH, Helin P: Coexistence of temporal arteritis and rheumatoid arthritis. J Rheumatol 1983, 10:831-833.
4. Blumberg B, Bunim JJ, Calkins E, et al: ARA nomenclature and classification of arthritis and rheumatism. Arthritis Rheum 1964, 7:93-97.
5. Stevens JC, Cartlidge NEF, Saunders M, Appleby A, Hall M, Shaw DA: Atlanto-axial subluxation and cervical myelopathy in rheumatoid arthritis. Quarterly J Med 1971, 40:391-408.
6. Blaiss MS, Waxman J, Lange R: Occipital headache as a manifestation of giant cell arteritis. S Med J 1987, 75:887-888.

Bacillus Cereus Bacteremia in an Intravenous Drug Abuser

CHERYL E. HINCHLIFFE, M.D. and GEORGE F. THORNTON, M.D.

ABSTRACT—*Bacillus* species, with the exception of *Bacillus anthracis,* are usually considered to be nonpathogenic. *Bacillus cereus* bacteremia is uncommon. However, it has recently been recognized as a complication of intravenous drug abuse. As the incidence of narcotic addiction rises, there has been an increase in the frequency of reported cases of *Bacillus cereus* bacteremia in the intravenous drug abuser. Therefore, it is important to recognize that *Bacillus cereus* can no longer be dismissed as a nonpathogen. We report a case of *Bacillus cereus* bacteremia in a cocaine/heroin addict and review the ten previously reported cases of *Bacillus cereus* bacteremia in narcotic addicts.

Bacillus species with the exception of *Bacillus anthracis,* are usually considered to be nonpathogenic. *Bacillus cereus* bacteremia is uncommon, however, it has recently been recognized as a complication of intravenous drug abuse. As the incidence of narcotic addiction rises, there has been an increase in the frequency of reported cases of *Bacillus cereus* bacteremia in intravenous drug abusers. It is important to recognize that *Bacillus cereus* cannot be dismissed as a nonpathogen. Only ten previous cases of *Bacillus cereus* bacteremia have been reported in narcotic addicts. We report a case of *Bacillus cereus* bacteremia in a cocaine/heroin addict and a review of the English literature of *Bacillus cereus* bacteremia in intravenous drug abusers.

Case Report

A 25-year-old black female was admitted to the Medical Service of Waterbury Hospital with complaints of fever, chills, headache, abdominal

---

CHERYL E. HINCHLIFFE, M.D., Resident in Internal Medicine. GEORGE F. THORNTON, M.D., Director, Division of Medicine; both at Waterbury Hospital Health Center, Waterbury, CT.

and leg pain, nausea, vomiting, and an episode of diarrhea, occuring immediately following an intravenous injection of cocaine. She denied cough, other symptoms of upper respiratory tract infection, neck stiffness, or dysuria. She had been an intravenous drug abuser for seven years and admitted to injecting cocaine five to six times a day, as well as occasional use of heroin. She used the same syringe and cleaned it with warm water. She also shared needles on occasion. Her past medical history was significant only for hepatitis A at age 12.

Physical examination showed a rectal temperature of 39°C., blood pressure 110/70, pulse 92, and respirations 16. Funduscopic examination revealed no Roth spots. Lungs were clear. Heart examination was within normal limits, no audible murmur. Extremities were without splinter hemorrhages. Multiple track marks were noted in both antecubital spaces. The remainder of her examination was normal.

Five of five blood cultures, obtained over 72 hours, were positive for gram-positive rods, subsequently identified as *Bacillus cereus*. The organism was resistant to penicillin, methicillin, ampicillin, cephalothin and oxacillin; and sensitive to erythromycin, tetracycline, chloramphenicol, clindamycin, gentamicin, and tobramycin by the Kirby Bauer method. The minimum inhibitory concentration for clindamycin was found to be 0.5 μg/ml by broth dilution. Urinalysis, chest x-ray, electrocardiogram and echocardiogram were within normal limits. Her white blood count was 7,900, hemoglobin 11.6 gm/dl, hematocrit 35%, with 77 segmented neutrophils, 16 bands, 5 lymphocytes, and 2 monocytes.

Since the initial impression was possible endocarditis, the patient was begun on empiric therapy with oxacillin sodium, 1g every four hours and tobramycin 80 mg every eight hours intravenously. She defervesced in the hospital on this regimen and remained afebrile. When the blood cultures were found to be positive for Gram-positive rods, therapy was changed to clindamycin 600 mg intravenously every six hours. On the third hospital day, the patient eloped from the hospital.

Less than 24 hours later, she returned after admitting to using intravenous cocaine. This was followed by left anterior chest pain, malaise, chills, diarrhea, and vomiting. The pain was non-pleuritic in nature and was associated with cough and shortness of breath. Her rectal temperature in the emergency room was 37.2°C. Physical examination was unremarkable, except for minimal tenderness to palpation of the left anterior chest wall. White blood count was 7,700 with 32 segmented neutrophils, 63 lymphocytes and 4 monocytes. A blood culture was sterile, and intravenous clindamycin was reinstituted. On day 26 of her therapy, she again disappeared from the hospital and was lost to followup.

Summary of Previously Reported Cases

Case 1: A 22-year-old female intraveneous opiate drug abuser. Patient was hospitalized for bacterial endophthalmitis with six blood cultures positive for *Bacillus cereus*, susceptible to chloramphenicol, clindamycin, erythromycin, and gentamicin. She was started on nafcillin 2g per day and gentamicin 180 mg per day. When the susceptibilities returned, chloramphenicol 2 g per day intravenously was begun and nafcillin discontinued. In addition she was treated with intraocular methicillin and gentamicin by subtenon injection. After four weeks, the chloramphenicol was discontinued and erythromycin 2 g per day intravenously was begun. Her right eye became blind and required enucleation. After discharge, she received four additional weeks of oral erythromycin therapy.[1]

Case 2: An 18-year-old female heroin addict was admitted with burning pleuritic pain, fever, and diaphoresis. She had a loud pericardial friction rub, pulmonic ejection murmur and a right ventricular heave. Five blood cultures grew *Bacillus cereus*. She was initially given penicillin 20 million units daily for seven days, but the organism was penicillin resistant. Intravenous erythromycin 1 gm per day was given for two days and discontinued because of intractable vomiting. Lincomycin 1800 mg per day was given intravenously for four days until the organism was found to be four times more sensitive to clindamycin. She was then given clindamycin 450 mg every eight hours for 20 days. She remained afebrile and five days after discharge her blood cultures were sterile.[2]

Case 3: A 61-year-old male heroin addict admitted with severe left scapular and lower back pain. The patient had no cardiac abnormalities. The white blood count was 12,500 and the chest and spine x-rays were normal. Two blood cultures were positive for *Bacillus cereus*. Therapy with intravenous clindamycin 2.4 gm per day was begun and the patient rapidly defervesced. A bone scan revealed increased activity over the midthoracic spine; a gallium scan was normal. On the 25th day, tomograms showed erosions of the anterior and mid-portion of T6-7, compatible with disk space infection. He received six weeks of parenteral clindamycin therapy and an additional two months orally.[1]

Case 4-6: No details reported. Described as endocarditis in drug addicts. Two were treated with clindamycin and one with nafcillin. All recovered.[1]

Case 7: A 57-year-old black male, chronic alcoholic and former drug abuser (no history of recent usage and no fresh injection sites), was brought to the emergency room because of an acute onset of irritability, fever, chills, vomiting, and headaches. His temperature 39.5°C., and his blood pressure 160/100. White blood count was normal. Physical examination showed pupils constricted and reacted sluggishly to light. Neck was rigid. The remainder of the physical examination was normal. Soon after admission, he lapsed into coma. He was empirically started on oxacillin, gentamicin and intravenous fluids. The following day his temperature was 39.5°C., and his white blood count 25,500 with a marked left shift. Oxacillin and gentamicin were discontinued and aqueous penicillin and chloramphenicol were started. Five blood cultures drawn on the day of admission grew *Bacillus cereus*. On the eighth hospital day, the patient expired. Autopsy revealed purulent meningitis, particularly marked over the parietal and occipital lobes.[3]

Case 8: A 35-year-old American seaman was admitted with complaints of chest pain, fever, and cough. Five days prior to admission, his sputum became dark red, then turned pink and frothy. He admitted to using intravenous heroin, cocaine, and amphetamines. Physical examination showed a temperature of 40°C., blood pressure 120/80. A grade 1/6 systolic murmur at the left sternal border was noted. Laboratory studies showed a white blood count of 14,600 with 96 segmented neutrophils, 3 lymphocytes, and 1 monocyte. Four of the six blood cultures grew Gram-positive rods identified as *Bacillus cereus*. He was initially given pencillin G 600,000 units intravenously every four hours and nafcillin 1.5 g intravenously every four hours. Since the bacillus was resistant to both penicillin and nafcillin, his medication was changed to vancomycin 500 mg every six hours for four weeks of therapy.[4]

Case 9: A 43-year-old black male admitted with fever, low back pain, and a right lobe infiltrate. His past medical history included sickle-cell-thalassemia anemia, heroin addiction, alcohol abuse, hepatitis, and multiple pulmonary emboli. Multiple sputum and blood cultures were negative, but a bone marrow aspirate revealed *Bacillus cereus*. He was treated with 60 mg of gentamicin intramuscularly every eight hours for 40 days without recurrence of fever or pain. The portal of entry remained uncertain, but it was postulated that the sickle-cell anemia, narcotic dependence (though vehemently denied), and alcohol abuse were predisposing factors.[5]

Case 10: A 50-year-old female heroin addict was admitted with a two-day history of fever and chills that had developed several hours after intravenous heroin use. On admission, her temperature was 38.3°C orally and blood pressure 112/70. Needle track marks were present but no rash, petechiae, or splinter hemorrhages were noted. A grade 2/6 systolic ejection murmur at the left lower sternal border and apex was heard. White blood count was 8,400 with 50 segmented neutrophils, 34 lymphocytes, and 13 monocytes. Chest x-ray and lumbar puncture were both normal. All six blood cultures obtained during a 17-hour period grew *Bacillus cereus*. Initial empiric antibiotic therapy with ampicillin, oxacillin and gentamicin was changed to clindamycin 750 mg every six hours and kanamycin 15 mg/k each day. An echocardiogram failed to demonstrate vegetations. Therapy was continued for four weeks; she was discharged afebrile and without complications.[6]

Discussion

The genus *Bacillus* is a member of the family *Bacillaceae*. Of the 25 species of the genus, all except *Bacillus anthracis* are considered to be ubiquitous saprophytes, possessing little pathogenicity for man.[7] The most commonly encountered saprophytes are *Bacillus subtilis, Bacillus cereus*, and *Bacillus megaterium*.[9] *Bacillus cereus* acts as an opportunistic invader more frequently than do other *Bacillus* species. Formation of endospores is one of the salient characteristics of the *Bacillus* species. Many species remain viable in soil and water for years. *Bacillus* species have been shown to be pathogens for man as well as animals.[8]

Bacillus cereus is distributed widely, being found in air, salt water, milk, dust, and feces. It is a Gram-positive aerobic, spore-forming rod. In contrast to the closely related pathogen, *Bacillus anthracis,* for which penicillin is the drug of choice, *Bacillus cereus* organisms are beta lactamase producers. When encountered in the laboratory, it has often been considered a contaminant of little clinical significance.

Bacillus cereus may be the most pathogenic member of the species because of its production of certain toxic metabolites, which are summarized in Table 1.[10]

Bacillus cereus produces an extracellular toxin that kills rats by producing massive thrombi in pulmonary vessels.[2] The toxin of *Bacillus cereus* was more cytotoxic, caused more necrosis, and was more lethal than anthrax toxin after intravenous injection into mice.

An enormous range of extracellular metabolites are known to be elaborated by *Bacillus cereus* and the closely related *Bacillus thuringiensis.* (See Table 2.) The role of the majority of these metabolites in the pathogenic activities of the organism are unclear. Lethal toxin, hemolysin, phospholipase-C, and enterotoxin are thought to be likely agents of *Bacillus cereus* virulence.[10]

The spectrum of human disease is wide. *Bacillus cereus* has been associated with abscess formation, bacteremia and septicemia, cellulitis, ear and eye infections, endocarditis, gastroenteritis, meningitis, kidney and urinary tract infections, osteomyelitis, puerperal sepsis, pulmonary infections, wound infections, and gangrene.[10] The organism is well-known in veterinary circles, particularly in relation to bovine mastitis.[10]

Bacillus cereus has been reported as a very common cause of two types of food poisoning. The "diarrheal-type" syndrome is characterized by symptoms of diarrhea and abdominal cramps eight to 16 hours after eating the incriminated food. There is also the "emetic type" syndrome characterized by vomiting after a short incubation period of less than one to five hours. Not all *Bacillus cereus* strains produce both toxins.[10]

Bacillus cereus is one of the most destructive bacterial pathogens of the eye. Theoretically ocular infections occur when a minute embolus becomes lodged in one of the ophthalmic vessels because of a predilection for ocular

Table 1

THE TOXINS OF BACILLUS CEREUS—PRESENT STATUS[10]

Toxin	*Characteristic*
(1) 'Diarrheagenic' toxin Fluid accumulation factor Vascular permeability factor Dermonecrotic toxin Intestino-necrotic toxin Mouse lethal factor 1	Relatively unstable enterotoxigenic protein, MW ca 50,000, pI 4.85. Susceptible to trypsin and pronase digestion. Antigenic. May have role in non-gastrointestinal infections.
(2) Cereolysin Hemolysin I (H-I) Mouse lethal factor 2	Thiol-activated cytolysin. Thermolabile antigenic protein MW 49-59,000, pI 6.3-6.7, Inactivated by cholesterol and antistreptolysin-0 in horse serum. Lethal to mice.
(3) Secondary hemolysin Hemolysin II (H-II)	Thermolabile antigenic protein, MW 29-34000, pI 4.92. Susceptible to pronase, pepsin and trypsin. *In vitro* activity unaffected by thiols, cholesterol, and antistreptolysin-0. In vivo toxicity not yet established.
(4) Phospholipases C Lecithinase Egg yolk turbidity factor	Relatively stable metallo-enzymes. (a) Phosphatidycholine hydrolase, MW 23,000, pI disputed 6.5-8.5. (b) Phosphatidylinositol hydrolase, MW 29,000 (Phosphatasemic factor), pI 5.4. (c) Sphingomyelinase, MW 24,000, pI 5.6. Hemolytic depending on sphingomyelin content of erythrocyte.
(5) Emetic	Low MW (5,000) enterotoxin, not formed above 40°C. Stable under conditions of 126°C x 1.5 hr., pH extremes, and to trypsin and pepsin. May be associated with sporulation or rice breakdown products?
(6a) Toxin of Ezepchuk & Fluer (1973)	Thermolabile antigenic protein MW 57,000. Inactivated by 60°C x 20 min. Lethal to mice and rabbits. IV injection induces emesis in cats. Possibly related to (1).
(b) Toxin of Ezepchuk, *et al.* (1979)	MW 100,000. 'Previously unknown protein.' Not sensitive to trypsin. Lethal to mice; injection in cats produced mild fever but no emesis. Rabbit loop negative but alters skin permeability. Not compared by the authors with 6(a).

Table 2

EXTRACELLULAR METABOLITES REPORTED TO BE PRODUCED BY BACILLUS CEREUS [10]

- Antibiotics (peptide)
  - biocerin
  - cerein
  - cerexins A & B
  - thiocillins I, III, III
- Beta-amylase
- Beta-glucanase
- Beta-lactamases
  - I penicillinases
  - II cephalosporinases
  - III
- *Cereolysin (hemolysin I)
- Collagenase
- *Exo-enterotoxins
- Gelatinase
- *Hemolysins
  - cereolysin
  - hemolysin II
- Histamine
- Hydrolases
- 20 -ketoreductase
- *Lethal toxin
- *Loop fluid-inducing factor
- Milk clotting enzymes (neutral proteases)
- Nucleases
  - DNase/RNase
- Pectinases
- *Phospholipases
  - 3 C-types
- Phosphatidase
- Proteases – neutral (including caseolytic & milk clotting enzymes)
- Pulcherriminic acid
- Thromboplastinase
- Tyramine
- Urease

tissues, probably the bacteria contained in the embolus cause panophthalmitis. [11]

The route of entry of *Bacillus cereus* is often difficult to identify; most commoly implicated are surgical intervention, traumatic wounds and burns, hemodialysis, and inhalation, and as well, recently intravenous drug abusers.

Diseases associated with *Bacillus cereus* bacteremic episodes include metastatic adenocarcinoma, bronchogenic carcinoma, multiple myeloma, lymphoma, chronic renal failure (peritoneal dialysis), tuberculous peritonitis, pneumonitis, cerebral thrombosis, chronic alcoholism, cirrhosis, subdural hematoma, diabetes mellitus (pancreatitis), delirium tremens (febrile), gunshot wound (abdomen), post open-heart surgery with endocarditis (streptococcal), chronic obstructive pulmonary disease, rheumatic heart disease, diabetes, hypertension, urinary tract infections, pregnancy, post partum mastitis, post incisional dentoalveolar abscess, newborn, and hyperbilirubinemia. [8]

Drug abuse in recent years has increased to epidemic proportions. The physician must be alert to the possibility of *Bacillus cereus* causing serious infection. In drug abusers, infection probably follows transient bacteremia resulting from direct intravenous injection of herion and/or other drugs contaminated with the organism. In one study, the most frequently recovered bacteria from both heroin and injection equipment were *Bacillus species*. [1] If more than one blood culture is positive, the organism should be considered a pathogen. The *Bacillus* cultures should be speciated and sensitivity testing performed.

Tetracycline, kanamycin, gentamicin, and chloramphenicol inhibit almost all strains of *Bacillus* regardless of species. There is a distinct species-related difference in susceptibility to penicillin G, ampicillin, methicillin, and cephalothin. *Bacillus cereus* are usually resistant to penicillin because of β-lactamase production.

In Tuazon's report, susceptibility testing of organisms from the five drug abusers showed uniform susceptibility to aminoglycosides, chloramphenicol, erythromycin, and clindamycin. There was consistent resistance to penicillin and cephalosporins. These findings are comparable to other studies. [12]

Summary

In summary, *Bacillus cereus*, formerly considered to be a nonpathogen, has been shown to cause severe morbidity and mortality. Opportunities for infection with so called "low-grade" pathogens are increasing with the wider application of adventurous medical and surgical therapy and prolonged survival of compromised patients. [13] Intravenous drug abusers appear to be especially at risk for bacteremias and endocarditis with many organisms including *Bacillus cereus*. This paper summarizes the reported experience with *Bacillus cereus* bacteremia in drug abusers. It is hoped this report will increase awareness to the possible pathogenicity of this organism.

REFERENCES

1. Tuazon CV, Hill R, Sheagren JN: Microbiologic study of street heroin and injection paraphernalia. J Infect Dis 129:327-329.
2. Lee W, Ho M: Bacillus Cereus Endocarditis in an addict. Ann Intern Med 1974, 80:148.
3. Mittel B, Lusins J: Meningitis and Bacteremia, Induced by Bacillus cereus. New York State Journal of Medicine 1980, 85-86.
4. Borchardt K, Schecter G, Botch V: Bacillus cereus Septecemia in a Drug Addict: Case Report. Milit Med 1982, 147:750-751.
5. Dreyer N, Fields B: Heroin-Associated Infective Endocarditis-a report of 28 cases. Arch Intern Med 1977, 137:401-402.
6. Weller P, Nicholson A, Braslow N: The Spectrum of Bacillus Bacteremias in Heroin Addicts. Arch Intern Med 1979, 139:293-294.
7. Farrar WE: Serious infections due to "non-pathogenic" organisms of the genus Bacillus. Am J Med 1963, 134:134-141.
8. Pearson HE: Human Infections Caused by Organisms of the Bacillus species. Am J Clin Path 1970, 53:506-515.
9. Masi R: Endogenous Endophthalmitis Associated with Bacillus cereus Bacteremia in a Cocaine Addict. Ann Ophthalmol 1978, 10:1367-70.
10. Turnbull PCB: Bacillus cereus Toxins. Pharmacol Ther 1981, 13:453-505.
11. Shamsuddi P, Tuazon C, Levy C, Curtin J, Bacillus cereus Panophthalmitis: Source of the Organism. Rev Infect Dis 1982, 4(1):97-103.
12. Coonrod J, Leadley P, Eickoff T: Antibiotic Susceptibility of Bacillus species. J Infect Dis 1971, 123:102-105.
13. Barnham M, Taylor A: A Case of Bacillus cereus Bacteremia. Postgrad Med J 1977, 53:397-99.

Pneumomediastinum from Cocaine Inhalation

RONALD B. PONN, M.D., RICHARD RUIZ, M.D., ALLAN L. TOOLE, M.D.
AND HAROLD STERN, M.D.

ABSTRACT—We report a patient who developed pneumomediastinum after smoking cocaine base. Review of prior reports suggests a characteristic presentation with pain and subjective shortness of breath after a long cocaine smoking session. Uncomplicated resolution of clinical and radiographic findings is the rule.

Several instances of pneumomediastinum secondary to cocaine inhalation have been reported in the emergency medicine and otolaryngology literature.[1-5] We recently saw such a patient and have reviewed the reported cases with respect to mode of presentation, treatment, and outcome.

Case Report

An eighteen-year-old man presented to the emergency room complaining of chest pain, dyspnea, and dysphagia. The symptoms had begun suddenly several hours earlier. The patient denied trauma, emesis, lung disease, and initially drug abuse, but when questioned at length, admitted smoking freebase cocaine. The symptoms began after a seven-hour smoking session during which he performed frequent Valsalva maneuvers to disperse the drug.

The patient was anxious but in no objective distress. Pulse, temperature, blood pressure, and respiratory rate were all normal. There was crepitance in the neck and above both clavicles. Breath sounds were equal bilaterally. Hamman's sign was not present. Arterial blood gases and electrocardiogram were normal. A chest film showed pneumomediastinum and air in the soft tissue of the neck, but no pneumothorax (Figure 1). A barium esophagram showed no perforation.

The patient was admitted to the hospital for observation. His symptoms had resolved by the following morning. The cervical subcutaneous emphysema had diminished greatly. He was discharged 36 hours after admission. At office follow-up one week later, his physical examination and chest film had returned to normal.

Case Review

Including the present patient, nine cases of pneumomediastinum after inhaling alkaloidal cocaine have been described. Table 1 summarizes the pertinent clinical data. All the patients were in their late 'teens and early twenties. Most were also cigarette smokers, but none had a history of symptomatic pulmonary disease. Most developed symptoms after prolonged sessions of "freebasing" cocaine. Presentation was within a few hours of these sessions. Chest pain, sometimes with radiation to the neck, was the main complaint in all cases. Most patients also reported dyspnea, but arterial blood gases, when reported, showed no hypoxemia. Sore throat, dysphagia, and stiff neck were also among the presenting symptoms in some patients. The most common suggestive physical finding was cervical subcutaneous emphysema, present in all but one patient. The characteristic Hamman's sign ("crunch") of mediastinal emphysema, however, was heard in only one third of the cases. Associated small pneumothoraces were seen on chest films in three cases and pneumopericardium in one patient. Of note is that no patient presented with associated cardiovascular or central nervous system signs of acute cocaine toxicity.

All patients recovered without complications. None required specific treatment of pneumthorax or pneumomediastinum. Symptoms generally resolved within twenty-four hours, and physical and radiographic abnormalities cleared within a few days. Two patients were followed as outpatients after a period of observation in the emergency department. The remainder were admitted for short-term observation.

Discussion

Mediastinal emphysema is most often the result of disease or trauma involving the esophagus, lungs, neck, and abdominal viscera.[6] Such secondary pneumomediastinum is almost always indicative of a potentially fatal condition requiring urgent aggressive treatment. Primary pneumomediastinum, on the other hand, occurs in the absence of trauma or associated pathology, is generally benign and self-limited, and is much less common. The etiologic mechanism is usually a transient but marked elevation of airway pressure leading to alveolar rupture and pulmonary interstitial emphysema. Air then dissects along perivascular planes toward the mediastinum, whence it can continue via fascial planes into the neck.

Labor and delivery, violent coughing, straining with defecation, emesis, asthmatic attacks, and extreme physical exertion can result in a pressure gradient between alveoli and pulmonary interstitium and have been associated with primary pneumomediastinum.[7,8] Voluntary forced

---

RONALD B. PONN, M.D., Clinical Instructor, Thoracic Surgery; RICHARD RUIZ, M.D., Resident in Surgery; ALLAN L. TOOLE, M.D., Assistant Clinical Professor, Thoracic Surgery. HAROLD STERN, M.D., Associate Clinical Professor, Thoracic Surgery; all of the Division of Cardiothoracic Surgery, Yale-New Haven Hospital and Yale University School of Medicine, New Haven, CT.

Reprint requests: 40 Temple St., New Haven, CT 06510 (Dr. Ponn).

Table 1

CLINICAL SUMMARY OF PATIENTS WITH PNEUMOMEDIASTINUM FROM COCAINE INHALATION

Ref	*Age / Sex*	*Pain*	*Dyspnea*	*Other Symptoms*	*Subcutaneous Emphysema*	*Hamman's Sign*	*Pneumothorax*
1	26 F	+	−	−	+	+	Bilateral apical
	19 F	+	−	−	−	−	−
2	21 M	+	+	sore throat	+	−	−
3	21 M	+	+	−	+	−	−
4	23 M	+	+	hoarseness	+	−	Bilateral apical
5	20's	+	−	dysphagia	+	+	−
	20's	+	+	dysphagia hoarseness	+	+	−
	20's	+	−	dysphagia	+	−	−
Present Case	18 M	+	+	dysphagia	+	−	−

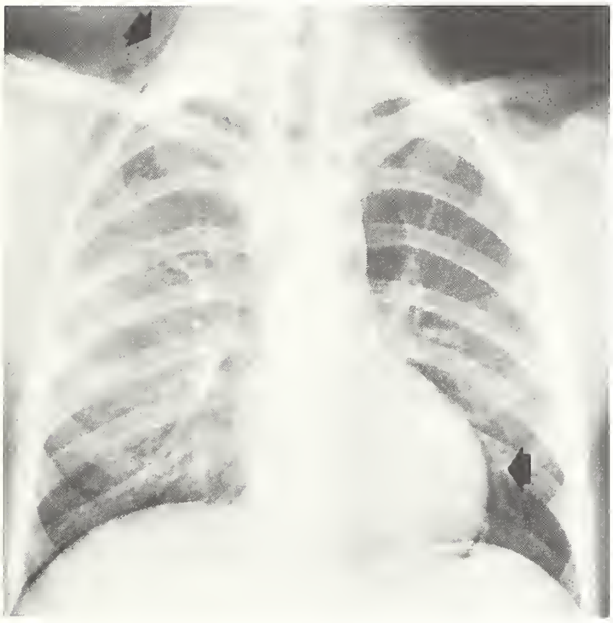


Figure 1

Admission chest film. Arrows demonstrate mediastinal and cervical emphysema.

expiration against a closed glottis, the Valsalva maneuver, can produce a similar situation. Smokers of freebase cocaine frequently perform prolonged, intense Valsalva maneuvers in order to speed the onset and to augment the effect of the drug. In addition, cocaine is a potent pulmonary vasoconstrictor.[9] Decreased pulmonary circulation can enhance the gradient from alveolus to interstitium and facilitate the central dissection of air along perivascular planes.[6]

The growing overall problem of cocaine abuse and the widespread availability of the potent cocaine freebase called "crack" has produced an alarming increase in hospital visits for a myriad of drug-related problems.[10] Physicians should be aware that "spontaneous" pneumomediastinum can result from smoking cocaine derivatives. Young healthy patients presenting with primary pneumomediastinum should be questioned regarding recent drug use. Conversely, in a known cocaine user presenting with severe chest pain, the differential diagnosis should include pneumomediastinum as well as myocardial ischemia or infarction.[11] Subcutaneous emphysema appears to be present in most cases; but Hamman's sign is less frequent. The definitive diagnosis is made by chest film. A contrast esophagram should be obtained to rule out any possibility of esophageal perforation. Although two of the reported cases were followed on an outpatient basis, we agree with Aroesty et al[5] that hospital admission for observation seems prudent, especially if there is associated pneumothorax. Although all reported patients recovered well, rare instances of respiratory and circulatory insufficiency have occurred due to progression of spontaneous pneumomediastinum.[6] Perhaps most importantly, patients need to be warned of possible recurrence of exacerbation should they continue to inhale cocaine.

REFERENCES

1. Shesser R, Davis C, Edelstein S. Pneumomediastinum and pneumothorax after inhaling alkaloid cocaine. Ann Emerg Med 1981, 10:213-15.
2. Bush MN, Rubenstein R, Hoffman I, Bruno MS. Spontaneous pneumomediastinum as a consequence of cocaine use. New York State J Med 1984, 84:618-19.
3. Morris JB, Shuck JM. Pneumomediastinum in a young male cocaine user. Ann Emerg Med 1985, 14:194-96.
4. Schweitzer VG. Osteolytic sinusitis and pneumomediastinum: deceptive otolaryngologic complications of cocaine abuse. Laryngoscope 1986, 96:206-10.
5. Aroesty DJ, Stanley RB, Crockett DM. Pneumomediastinum and cervical emphysema from inhalation of "freebased" cocaine: report of three cases. Otolaryngol Head Neck Surg 1986, 94:372-74.
6. Gray JM, Hanson GC. Mediastinal emphysema: aetiology, diagnosis and treatment. Thorax 1966, 21:325-32.
7. Munsell WP. Pneumomediastinum. JAMA 1967, 202:689-93.
8. Morgan EJ, Henderson DA. Pneumomediastinum as a complication of athletic competition. Thorax 1981, 36:155-56.
9. Weiss RD, Goldenheim PD, Mirin SM, Hales CA, Mendelson JH. Pulmonary dysfunction in cocaine smokers. Am J Psychiatry 1981, 138:1110-1112.
10. Cregler LL, Mark H. Medical complications of cocaine abuse. N Engl J Med 1986, 315:1495-1500.
11. Isner JR, Estes M, Thompson PD, Costanzo-Nordin MR, Subramanian R, Miller G, Katsas G, Sweeney K, Sturner WQ. Acute cardiac events temporally related to cocaine abuse. N Engl J Med 1986, 315:1438-43.

Important Advances in Clinical Medicine

Neurology

The Scientific Board of the California Medical Association presents the following inventory of items of progress in neurology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in neurology that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Neurology of the California Medical Association and the summaries were prepared under its direction.

Neurologic Consequences of Designer Drugs

What are "designer drugs?" Most simply put, they are analogs of controlled substances (or CSAs, as we now call them). Historically, they can be viewed as the penultimate result of the synthetic drug revolution that began in the 1960s with LSD and phencyclidine hydrochloride (PCP). These new compounds are legal to possess, cheap to produce and do not have to be imported. The subject is a timely one in view of current efforts to stem the flow of illicit narcotics into the United States. If successful, this well-intended effort is likely to result in an explosion of domestically produced "synthetics." These compounds can be sold under almost any guise, including heroin, cocaine and even as marijuana (parsley laced with PCP).

There are three reasons why physicians should be concerned. Some of these compounds are extraordinarily potent, increasing the risk of overdose, particularly in the hands of a novice. One of the fentanyl analogs sold on the street, for example, is known to be 1,000 times more potent than morphine. Second, to the best of my knowledge, none of the "kitchen chemists" has ever been credited with testing a newly synthesized product on laboratory animals before releasing it for human consumption. Hence, the danger that a new toxin may "hit the street" is ever constant. Finally, quality controls are lacking. Bad batches are usually first discovered when addicts get sick.

Given the foregoing, it is not surprising that CSAs have spawned a rapidly developing branch of neurotoxicology. The first selective neurotoxin sold in California as heroin was 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (now widely known as MPTP), which appeared on the streets in 1982. MPTP selectively destroys the zona compacta of the substantia nigra and causes parkinsonism in its victims. Although there are only seven known severely involved patients with MPTP-induced parkinsonism, epidemiologic evidence suggests that more than 500 young addicts may have injected MPTP under the impression it was heroin. Hence, MPTP-induced parkinsonism should be considered in the differential diagnosis of any person with an early case of parkinsonism and a history of drug abuse.

Parkinsonism is not the only neurologic complication to result from the increasing flow of synthetic street drugs. In the past six months more than 20 cases of chorea of varying duration have been identified in persons abusing amphetamine. While amphetamine-induced chorea has been reported previously, it is rare, and the sudden appearance of a number of new cases has raised concern that a much more potent, new "designer" amphetamine may have appeared on the drug scene. Efforts are currently under way to further characterize this syndrome and identify the offending agent. For the moment, however, the acute onset of chorea in young adults should at least raise the question of amphetamine-analog abuse.

There are other analogs of amphetamine that may be equally worrisome. Methamphetamine, MDA (3,4-methy-

---

Reprinted from *The Western Journal of Medicine*, March, 1987.

lenedioxyamphetamine) and MDMA (3, 4-methylenedioxymethamphetamine; "ecstasy") appear to be neurotoxic, causing prolonged depletion of serotonin and nerve terminal degeneration in the striatum and hippocampus of laboratory animals. While the clinical implications of these effects have yet to be determined, these observations provide one more cause for concern regarding the effects of synthetic drug abuse.

If there is a message in all of this, it is that physicians need to be increasingly aware of the medical hazards of the synthetic drug revolution that appears to be rapidly descending on us.

J. William Langston, M.D.
San Jose, Calfornia

REFERENCES

Ballard PA, Tetrud JW, Langston JW: Permanent human parkinsonism due to 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP): Seven cases. Neurology Jul 1985, 35:949-956.

Langston JW: MPTP and Parkinson's disease. Trends Neurosci Feb 1985, 8:79-83.

Ricaurte G, Bryan G, Strauss L: Hallucinogenic amphetamine selectively destroys brain serotonin nerve terminals. Science Sep 1985, 229:986-988.

Immunotherapy in Multiple Sclerosis

Multiple sclerosis remains a disorder of unknown pathogenesis despite decades of research. Current immunologic studies imply both humoral and cellular immune dysfunction. These findings have raised the possibility of an autoimmune basis for this disease, but conclusive proof is lacking. The presumed immune dysfunction, however, forms the basis for various currently available immunotherapies. The following treatments are now accepted in clinical practice, but should be undertaken with the guidance of a neurologist familiar with the use, risks and side effects of these methods.

Cyclophosphamide

During the past five years, several studies have investigated intensive immunosuppressive treatment with cyclophosphamide in patients with multiple sclerosis. Initial trials showed that about 75% of patients with chronic progressive disease received benefit defined as stabilization or abatement of clinical symptoms for a year. A recent five-year follow-up of 188 patients who received cyclophosphamide treatment showed reprogression in 87%, necessitating retreatment. The most recent treatment programs now involve an induction regimen followed by periodic outpatient booster injections of cyclophosphamide to maintain remission.

Corticosteroids

Long a mainstay in treating patients with relapsing or remitting multiple sclerosis, corticosteroids have shown efficacy in a new double-blind trial of high doses of parenterally administered methylprednisolone sodium succinate. The drug was administered intravenously in an initial dose of 15 mg per kg per day, tapering to 1 mg per kg per day in 15 days, followed by a course of prednisone given orally in decreasing doses over four months. Treatment with methylprednisolone was associated with significantly greater improvement and a shorter relapse duration than in control patients.

Azathioprine

Prolonged administration of azathioprine has been used in cases of nonremitting multiple sclerosis since the 1970s. The results of clinical trials have been mixed. Some of the studies were uncontrolled, making interpretation difficult. The combined use of azathioprine and methylprednisolone may slow the progression of the disease, according to a new three-year study conducted at UCLA. Side effects of azathioprine use include leukopenia and liver function abnormalities in some patients.

Plasmapheresis or Lymphocytapheresis

Reports that humoral and cellular factors may be involved in multiple sclerosis have resulted in trials of plasmapheresis and lymphocytapheresis. Previous studies of plasmapheresis have given mixed results, and some studies have combined the use of plasmapheresis with a regimen of prednisone given orally and cyclophosphamide. A multicenter, double-blind study of plasmapheresis and immunosuppression will be completed this year. Lymphocytapheresis as a long-range therapy has been tested in a one-year trial and has shown no clear benefit. As of this writing, there are insufficient data to recommend these two therapies in patients with multiple sclerosis.

Treatments Under Investigation

In the opinion of some experts on multiple sclerosis, patients should not be treated with investigational drugs outside of experimental protocols. A number of treatment regimens are currently under investigation and these include natural and recombinant interferon, cyclosporine, monoclonal antibodies against T-lymphocytes and poly-ICLC, a potent interferon inducer.

In summary, a number of immunotherapies are currently available or under investigation for multiple sclerosis, but the risks, side effects and benefits of these treatment measures should be carefully weighed in each case with guidance from a neurologist familiar with the treatment of this disorder.

Jack C. Sipe, M.D.
La Jolla, California

REFERENCES

Durelli L, Cocito D, Riccio A, et al: High-dose intravenous methylprednisolone in the treatment of multiple sclerosis. Neurology Feb 1986, 36:238-243.

McFarlin DE: Use of interferon in multiple sclerosis (Editorial). Ann Neurol Oct 1985, 18:432-433.

Scheinberg LC Van den Noort S: Editorial on multiple sclerosis treatments. Neurology May 1986, 36:703-704.

Weiner HL, Hauser SL, Hafler DA, et al: The use of cyclophosphamide in treatment of multiple sclerosis. Ann NY Acad Sci 1984, 436:373-380.

Pseudoseizures

Pseudoseizures are characterized by paroxysmal behavioral alterations that may resemble epileptic seizures. Impaired responsiveness to external or internal stimuli (or both) and involuntary movements, often dramatic, are common features. Pseudoseizures are often a conversion symptom ("hysterical seizures") and may coexist with other neurologic or nonneurologic illnesses. In addition to epileptic seizures, other neurologic disorders, such as narcolepsy and migraine, or certain cardiovascular and systemic conditions, particularly syncope, must be excluded before pseudoseizures are considered. Further, the relationship between pseudoseizures and psychiatric illnesses has been poorly defined.

Because patients are rarely examined during an actual attack and are often amnestic of the ictal events, the diagnosis of pseudoseizures is taxing to a clinician. In an atmosphere of defensive medicine, practitioners are more inclined to initiate antiepileptic drug treatment than to resort to further observation when diagnostic tests are negative and the question cannot be resolved. Because of the chronicity of epilepsy that they mimic, pseudoseizures often become a chronic, disabling illness. It has been shown that a signficant number of epilepsy victims also have pseudoseizures. Consideration of this disorder is important in managing epileptic seizures not only at the onset but also in refractory cases. Antiepileptic drug intoxication may aggravate pseudoseizures.

The diagnosis of pseudoseizures owes much to the increased accuracy in diagnosing epileptic seizures. It is now feasible to extend an electroencephalographic (EEG) monitor to critically examine a clinical attack. In many instances, an ambulatory cassette EEG monitor may be preferable because it does not require hospital admission. This method, however, cannot provide reliable information concerning the ictal behavior. Prolonged monitoring and documentation of a patient's behavior can only be accomplished in a hospital setting, most commonly in conjunction with a video monitor system. EEG and video data can be played back later simultaneously for detailed analysis. Such an approach is considered essential in diagnosing pseudoseizures in patients who also suffer genuine epileptic seizures.

One must realize in this diagnostic undertaking that an absence of abnormalities, even when monitoring is prolonged, does not by itself establish a diagnosis of pseudoseizures. Inducing an attack by suggestion or in a specific provocative environment is an effective means of aiding the investigation. The precipitation of genuine epileptic seizures under certain controlled circumstances, however, including psychologically structured interviews, has been well documented. Measuring the serum prolactin level immediately following an attack has been advocated as a diagnostic aid and, when elevated, may prove useful in confirming epileptic seizures.

There is no widely accepted effective treatment for pseudoseizures. There has been a renewed interest in the use of hypnosis, but its effectiveness in this disorder must be carefully evaluated in a controlled fashion. Therefore, an accurate diagnosis remains the single most important step in managing pseudoseizures.

Fumisuke Matsuo, M.D.
Salt Lake City

REFERENCES

Desai BT, Porter RJ, Penry JK: Psychogenic seizures. Arch Neurol 1982, 39:202-209.

Gumnit RJ: Intensive neurodiagnostic monitoring: Role in the treatment of seizures. Neurology Oct 1986, 36:1340-1346.

Ramani V, Gumnit RJ: Management of hysterical seizures in epileptic patients. Arch Neurol Feb 1982, 39:78-81.

Riley TL, Roy A (Eds): Pseudoseizures. Baltimore, Williams & Wilkins, 1982.

Trimble MR: Serum prolactin in epilepsy and hysteria. Br Med J Dec 16 1978, 2:1682.

Should Hypertension in a Patient With Acute Stroke Be Treated?

Common medical wisdom, still widely taught and believed in this country, holds that elevated blood pressure should be lowered during ischemic stroke and certain other cerebrovascular disorders. Although this dogma has been questioned in recent years, most practicing physicians still use antihypertensive measures immediately after cerebral infarction and in patients with subarachnoid or intracerebral hemorrhage.

High blood pressure is very common early in the course of acute stroke, being found in 70% or more of these cases when seen initially. Of those patients not treated for hypertension, the great majority become normotensive within ten days. The blood pressure rise associated with the onset of cerebral ischemia apparently subsides as brain function recovers and autoregulation is restored. In such persons a sudden new blood pressure elevation may suggest a recurrence of brain ischemia. Bilateral carotid occlusion in animals is accompanied by an immediate rise in the blood pressure, which generally is proportional to the fall in cerebral perfusion. These observations indicate that hypertension in a patient with acute stroke often is a physiologic mechanism designed to protect ischemic brain by increasing the blood flow.

Cerebral autoregulation is impaired in blood vessels irrigating that part of the brain where the stroke has occurred. Thus, blood flow to this area becomes passively dependent on arterial pressure. If the blood pressure falls, perfusion of the ischemic area declines, thereby leading to a possible increase of the infarct and jeopardizing recovery. Decreased flow also may encourage further thrombus formation and could cause additional narrowing in the originally affected artery.

Many physicians believe that hypertension worsens the outcome of acute cerebral infarction, perhaps by causing forced vasodilation, bleeding and cerebral edema. There is little clinical evidence to support this thesis. On the contrary, data exist to indicate that hypotension during an acute stroke, either through medication or from other mechanisms, may worsen rather than improve the clinical outcome by extending the original infarct and impairing flow through the watershed area.

There is some uncertainty as to the specific indications for treating hypertension in patients with acute stroke. Some experts feel that blood pressures elevated to levels of 220/130 mm of mercury or more always should be treated. Most experts recommend that therapy for high blood pressure is essential in the face of myocardial insufficiency (especially congestive heart failure), severe renal damage, retinal bleeding and when hypertensive encephalopathy clearly is present. Hypertensive encephalopathy, a term coined by Oppenheimer and Fishberg in 1928 for recurrent seizures in patients with acute nephritis with elevated blood pressure, is uncommon, is probably due to a breakdown of cerebral autoregulation and is characterized by weakness, apathy, headaches, drowsiness, seizures, visual loss, transient and often fluctuating focal neurologic signs plus coma.

As regards subarachnoid hemorrhage, many authorities now believe that induced hypertension along with volume expansion is useful to counter vasospasm. There is no clear-cut evidence that reducing the blood pressure in patients with hypertensive intracerebral hemorrhage is or is not helpful, and some literature indicates that a high blood pressure should not be lowered in this situation.

The above discussion relates only to acute stroke. The fact that chronic hypertension is the most common and potent risk factor for cerebral infarction remains undisputed. There also is good evidence that treating hypertension reduces the occurrence of stroke, and there are strong indications in the literature that lowering blood pressure after a cerebral infarction reduces the risk for subsequent events.

Arnold H. Greenhouse, M.D.
Reno, Nevada

REFERENCES

Lavin P: Management of hypertension in patients with acute stroke. Arch Intern Med Jan 1986, 146:66-68.

Spence JD, Del Maestro RF: Hypertension in acute ischemic stroke: Treat. Arch Neurol Oct 1985, 42:1000-1002.

Wallace J, Levy L: Blood pressure after stroke. JAMA Nov 13 1981, 246:2177-2180.

Yatsu FM, Zivin J: Hypertension in acute ischemic stroke: Not to treat. Arch Neurol Oct 1985, 42:999-1000.

Panic Disorder

One of the more interesting and rapidly changing neuropsychiatric conditions involves a heterogeneous group of disorders currently subsumed under the general heading "Panic Disorder." Although defined in the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition (DSM III), as "agoraphobia, with or without panic attacks," many clinicians find this classification inadequate. It is anticipated that the revised edition of DSM III (DSM III-R) will be a more useful reference. This topic was reviewed in the March 1983 issue of this journal and interested readers are referred to it.

Symptoms have been described as being due to a "profound activation of the sympathetic nervous system." They are primarily cardiovascular and respiratory in nature: dyspnea, palpitations, chest pain or discomfort, choking or smothering sensations, or a more general reflection of autonomic nervous system dysfunction—that is, dizziness; feelings of unreality; paresthesias in hands or feet; hot and cold flashes; sweating; faintness; trembling or shaking; fear of dying, "going crazy" or doing something uncontrolled during an attack, or a sense of apprehension or impending doom. While usually lasting for only minutes, they may persist for hours. The symptoms are accompanied by varying degrees of nervousness and apprehension between attacks. As one might readily predict, afflicted patients may initially be seen by any of a group of specialists—a cardiologist, neurologist, gastroenterologist, internist or an emergency department physician. As more detailed physical examinations usually reveal little, the patient is reassured and told not to worry. After several episodes similar to this, both physician and patient feel frustrated, the patient often feeling abused and angry and sometimes even frightened. The idea of seeing a psychiatrist (sort of a medical "court of last resort") may be brought up—an often serendipitous choice.

Further clinical evaluation often reveals that, while initial anxiety attacks may have been spontaneous, most patients quickly discover those situations most likely to induce symptoms and begin to structure their lives to minimize their occurrence. Often, elaborate "hierarchies" of "safe" and "not-safe" activities and places are the result, leading to greatly disrupted family and personal lives.

Biologic factors are becoming increasingly important. Although data are often minimal and inconsistent, the following trends have appeared:

- Cross-cultural prevalence is between 1% and 4%, with women twice as likely to be afflicted as men.
- There is a higher concordance rate in monozygotic twins than in dizygotic twins and nontwin siblings.
- Patients with panic disorder are at increased risk for a depressive disorder.
- There is a higher rate of alcoholism, panic disorder and depression in probands of patients with this disorder.
- There is a uniform, unimodal age of onset distribution in the early 20s among afflicted patients.
- Abnormal sleep patterns, atypical responses to sleep deprivation, blunted growth hormone response to administration of clonidine hydrochloride and blunted thyroid-stimulating hormone and prolactin responses to thyrotropin-releasing hormone have been documented.
- Mitral valve prolapse occurs in up to 50% of patients with panic disorder. As many patients are also tall, thin,

The clinical challenge:

The Elderly Hypertensive

- *Reduced cardiac output and renal function*
- *Greater potential for side effects*

with long arms and narrow anteroposterior chest diameters, a systemic disorder marked by skeletal abnormalities, mitral valve prolapse and autonomic nervous system dysfunction has been postulated.

- About 80% of these patients have a panic attack when given a lactate infusion test as compared with only moderate and transient symptoms in a much smaller percentage of normal persons.
- Both the locus ceruleus and the left parahippocampal gyrus (the latter by positron emission tomography) have been found to be abnormal in many patients with panic attacks.

Treatment for the condition is divided into several types—each with its strong proponents ranging from an almost purely in vivo behavioral desensitization program to a more classical psychodynamic approach. Of the medications used, the tricyclic antidepressant imipramine, the new second-generation azolobenzodiazepine, alprazolam, and the monoamine-oxidase inhibitor phenelzine are the mainstays. A middle-of-the-road therapeutic approach involves these medications, together with behavioral exposure and cognitive and supportive psychological adjuncts. While 90% to 95% of patients are successfully treated, relapse rates range from 30% to 75%. Several courses of treatment are often necessary.

In conclusion, while theories of causation have been suggested along biologic and psycological lines, none are wholly consistent with the findings regarding the phenomenology and evolution of panic disorder. It would be premature to conclude that any unitary conceptual framework has yet been provided, and the biologic, psychological and behavioral aspects of this disorder should all receive due attention both in clinical management and scientific investigation.

Frederick Bittikofer, M.D.
Charles A. Kane, M.D.
Hayward, California

REFERENCES

Chein C: Panic disorders, In Epitomes—Important advances in clinical medicine. West J Med Mar 1983, 138:405.

Grunhaus L, Birmaher B: The clinical spectrum of panic attacks. J Clin Psychopharmacol Apr 1985, 5:93-99.

Pasnau RO: Clinical presentations of panic and anxiety. Psychosomatics Oct 1984, 25(suppl):4-9.

Shader Rl, Goodman M, Gever J: Panic disorders: Current perspectives. J Clin Psychopharmacol Dec 1982, 2(suppl):2-10s.

Current Concepts—Alcohol and Brain Damage

For many years central nervous system dysfunction associated with chronic alcoholism was attributed to trauma, infection, liver disease and, especially, nutritional deficiency rather than to a direct toxic effect of alcohol. The Wernicke-Korsakoff syndrome, a serious and well-known complication of long-standing alcohol ingestion, was blamed on thiamine deficiency. The average alcoholic person was felt not at risk for cerebral damage if nutrition was maintained. Newer data from animal studies, neuropsychological tests and computed tomography suggest that alcohol indeed is directly injurious to the central nervous system regardless of food intake.

There is evidence that in 50% or more of those with chronic alcoholism, cognitive changes develop that are characterized by a radiologically demonstrable, probably reversible, cortical atrophy and specific neuropsychological deficits. Among the neuropsychological deficits are a progressive disinterest in the environment, carelessness about personal appearance, impaired judgment, defective intention, slowness of thought and, on specific testing, visuoperceptive and problem-solving abnormalities. This condition, termed alcoholic dementia, is attributed to the direct effects of alcohol on the association cortex, occurs even with good nutrition and is said to depend on the duration, amount and frequency of ethanol consumption. These patients usually have a mild but not readily apparent memory loss.

In contrast, those with the Korsakoff syndrome have an anterograde amnesia manifested by interference with the transfer of information from short- to long-term memory and also a retrograde amnesia with impaired retrieval of stored information. The latter has a temporal gradient with more difficulty in recalling events close to the onset of illness than those of a more remote nature. These patients usually have relatively intact intelligence by a standard IQ test, although their memory quotient is defective. They also share the specific neuropsychological deficients of the type noted above in alcoholic dementia.

Thus, little doubt now exists that most persons with chronic alcoholism have cognitive deficits that often are mild and detectable only through relatively advanced testing. These losses appear to be of cortical origin, can be accompanied by reversible cortical atrophy and seem unrelated to nutrition. On the other hand, Korsakoff's syndrome is a serious, usually irreversible amnesia of rapid rather than slow onset that is readily apparent even to inexperienced observers. This disorder seems associated in most cases with thiamine deficiency although there is some controversy at present as to the exact relationship.

The anatomic basis for the amnesia of Korsakoff's syndrome remains controversial. Recently the nucleus basalis of Meynert has been suggested as the major site of involvement. Patients with amnesia of the Korsakoff type have considerable neuronal loss in this nucleus, less than in Alzheimer's disease but more than in Huntington's chorea, in schizophrenia or in chronic alcoholism with intact memory. Currently, evidence is insufficient to definitely implicate a cholinergic basis for the Korsakoff syndrome, but further investigation of this possibility appears warranted.

Arnold H. Greenhouse, M.D.
Reno, Nevada

REFERENCES

Butters N: Alcoholic Korsakoff's syndrome: An update. Semin Neurol Jun 1984 4:226-244.

Cutting J: Alcoholic dementia, In Benson DF, Blumer D (Eds): Psychiatric Aspects of Neurological Disease, Vol 2. New York, Grune & Stratton 1982, 149-165.

Lishman WA: Cerebral disorders in alcoholism: Syndromes of impairment. Brain Mar 1981, 104(Pt 1):1-20.

Ron MA, Acker W, Lishman WA: Morphological abnormalities in the brains of chronic alcoholics—A clinical, psychological and computerized axial tomographic study. Acta Psychiatr Scand 1980, 62(suppl 286):41-46.

Neurologic Use of Calcium Channel Blocking Agents

Calcium antagonists are now widely used for treatment of vasospastic angina, cardiac arrhythmias and hypertension. By preventing the influx of calcium into vascular smooth muscle, these agents inhibit vasoconstriction and promote vasodilation. Furthermore, in a patient with ischemia, blockage of membrane calcium channels may prevent the intracellular biochemical changes that result in infarction. Such properties have naturally led to investigation of these agents for their use in neurologic disease involving pathologic alteration of cerebral blood flow.

Migraine

Although the precise pathophysiologic mechanism underlying migraine remains unknown, a vasoactive component appears to be prominent in many patients with this disorder. Blocking migrainous intracranial and extracranial vasoconstriction theoretically may alleviate or prevent pain and reduce the incidence of associated focal neurologic deficit. Verapamil has been successfully used for migraine prophylaxis, generally in doses ranging from 40 to 80 mg three or four times a day and rarely with significant side effects; constipation and light-headedness are occasionally encountered. Nimodipine, a calcium antagonist with an apparent predilection for the cerebral vasculature, has likewise been used safely and effectively for migraine in a dose of 40 mg three times a day.

Vasospasm

Delayed cerebral vasospasm and consequent ischemic infarction are common and much-feared subacute complications of aneurysmal subarachnoid hemorrhage. Clinical experience with the calcium antagonists in this setting is limited, and there is no clear indication for their use at the present time. In one study, although the incidence of symptomatic cerebral vasospasm was not reduced by prophylactic use of nimodipine, such treatment did appear to lessen the severity of consequent neurologic deficit.

Ischemic Stroke

Pharmacologic protection against calcium-induced ischemic cell damage is a theoretically attractive therapy for acute stroke. In various experimental models of ischemic stroke, however, calcium antagonists have been inconsistently effective in reducing infarct size and may adversely influence outcome by promoting edema formation. A large-scale clinical trial of nimodipine for ischemic stroke is due to begin later this year, and, until results are forthcoming, this therapy should be considered experimental.

John F. Rothrock, M.D.
San Diego

REFERENCES

Allen GS, Ahn HS, Preziosi TJ, et al: Cerebral arterial spasm—A controlled trial of nimodipine in patients with subarachnoid hemorrhage. N Engl J Med 1983, 308:619-624.

Gelmers HJ: Nimodipine, a new calcium antagonist, in the prophylactic treatment of migraine. Headache May 1983, 23:106-109.

Mabe H, Nagui H, Takagi T: Effect of nimodipine on cerebral functional and metabolic recovery following ischemia in the rat brain. Stroke 1986, 17:501-505.

Siesjo BK: Cerebral circulation and metabolism. J Neurosurg 1984, 60:883-908.

Solomon GD, Steel JG, Spaccavento LJ: Verapamil prophylaxis of migraine. JAMA Nov 1983, 250:2500-2502.

ADVISORY PANEL TO THE SECTION ON NEUROLOGY

Wigbert Wiederholt, M.D.
Advisory Panel Chair
Section Editor
CMA Scientific Board Representative
University of California, San Diego

Donald F. Piper, M.D.
Sacramento

Ronald Kobayashi, M.D.
San Diego

Philip R. Calanchini, M.D.
San Francisco

James R. Nelson, M.D.
La Jolla

Guy M. Hunt, M.D.
Loma Linda University

David A. Prince, M.D.
Stanford University

Pierre Dreyfus, M.D.
University of California, Davis

Arnold Starr, M.D.
University of California, Irvine

Robert W. Baloh, M.D.
University of California, Los Angeles

Robert Katzman, M.D.
University of California, San Diego

Bruce Berg, M.D.
University of Calfornia, San Francisco

J. P. Van Der Meulen, M.D.
University of Southern California

Elizabeth Blalock, M.D.
Anaheim

Lance Fogan, M.D.
Van Nuys

Dee Silver, M.D.
La Jolla

Carter Mosher, M.D.
Sacramento

The Fire Saved His Life

MORTON G. FELDMAN, M.D.

There are many dramatic stories which revolve around the casino world. For most people, long Caribbean weekends combine sun, relaxation, entertainment, and the excitement and challenge of the casino. But on a recent trip, a simple game of blackjack turned into a matter of life and death.

A few months ago, a group of friends and I took a trip to Puerto Rico where for three days we left headaches, deadlines, and worries behind. Then at about 3:30 on New Year's Eve, a raging fire suddenly spread throughout the first few floors of the hotel.

Ninety-six lives were lost in the now infamous Dupont Plaza Hotel fire on December 31, 1986. Only a few who were in the Casino when the fire started survived. A close friend of mine somehow managed to escape the burning Casino where a few minutes before he was engrossed in a game of blackjack. Remarkably, he was able to jump about twenty feet to safety through a broken window onto the concrete-covered pool area.

Two high-school boys, members of a basketball team, pulled my friend to the safety of the beach area where he joined a dozen or so other victims in a nightmarish scene.

Before the ambulances arrived, I attended broken limbs, fractured backs, severe burns, and multiple lacerations. Beach chairs that an hour ago held happy vacationers basking in the sun were now used as make-shift stretchers.

My friend was treated for bilateral leg fractures, L4-L5 compression fractures, right sided rib fractures, and 10% second degree burns.

Although the victims received exemplary care in Puerto Rico, it was decided that it was in their best interests for them to be transferred to local hospitals in New England.

So, four days after the fire, with the cooperation of Puerto Rican officials. Hector Luis Accevedo and Carlos Ortiez Morales, and Dr. Colon, the Chief of Emergency Medical Services, arrangements were made to transport the group on an Air National Guard Medi-Vac plane to Connecticut.

I admitted my friend, a 63-year-old diabetic, to St. Vincent's Medical Center in Bridgeport, Connecticut, with a diagnosis of multiple trauma.

Past history revealed a normal intravenous pyelogram obtained a year and a half ago for chronic urethral stricture.

On examination, he was in mild distress with a pulse of 100 and respiration of 20. His blood pressure was 150/90 mmHg. Slight pain was noted over the right rib cage, and his breath sounds were normal. The head, neck, lungs, and heart appeared normal. The chest examination revealed occassional wheezing due to smoke inhalation. The abdomen was soft and non-tender; bowel sounds were normal, and no masses were palpable. There was tenderness over the lower back. The rectal examination was unremarkable, and a stool specimen was negative for occult blood. Fractures which had previously been cast were in satisfactory position. Second degree burns were dressed with 1% silver sulfadiazine ointment.

Urinalysis was normal and hematocrit was 32%. Blood chemistry results, except for an elevated blood sugar, were within normal ranges. Chest x-rays showed that the lungs and costophrenic angles were clear, and the cardiomediastinal silhouette was normal. Multiple rib fractures were noted on the right side. X-rays of the lower extremities, through a cast, revealed bilateral leg fractures. There were central compression fractures of L-4 and L-5.

Over the next several days, the hematocrit fell to 22%. The leg casts were changed and extremities inspected. In order to account for the falling hematocrit, a contrast-enhanced CT scan was obtained of the chest and abdomen. The ascending and thoracic aorta, as well as the liver, pancreas, and spleen appeared normal. To our surprise, a complex mass in the posterior aspect of the left kidney contained within Gerota's fascia was noted (Figure 1). The diagnostic considerations were either hemorrhage into a simple cyst or a solid renal neoplastic process. Further evaluation with ultrasonography demonstrated a solid mass in the left kidney, a simple right renal cyst, and an echogenic area in the lateral aspect of the right lobe of the liver. Bilateral renal and celiac angiogram showed a solid 6 x 8 cm hypervascular mass in the left kidney (Figure 2). The left renal vein was patent. A 3 cm cyst

---

MORTON G. FELDMAN, M.D., Attending Surgeon, St. Vincent's Hospital, Bridgeport, CT.

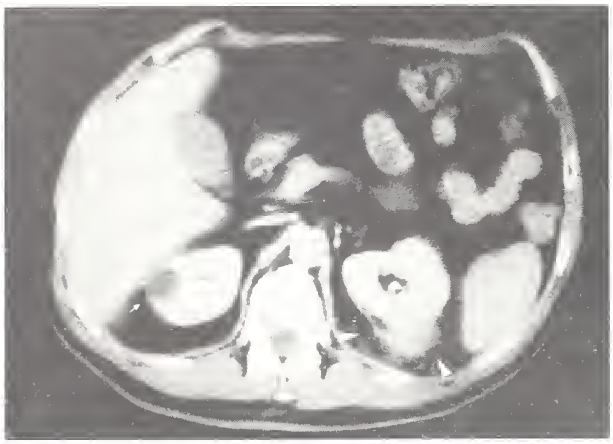


Figure 1

Simple cyst present in right kidney (small arrow). The left kidney revealed a complex mass contained within Gerota's fascia (large arrows). The diagnostic considerations were hemorrhage into a simple cyst or a solid renal neoplastic process.

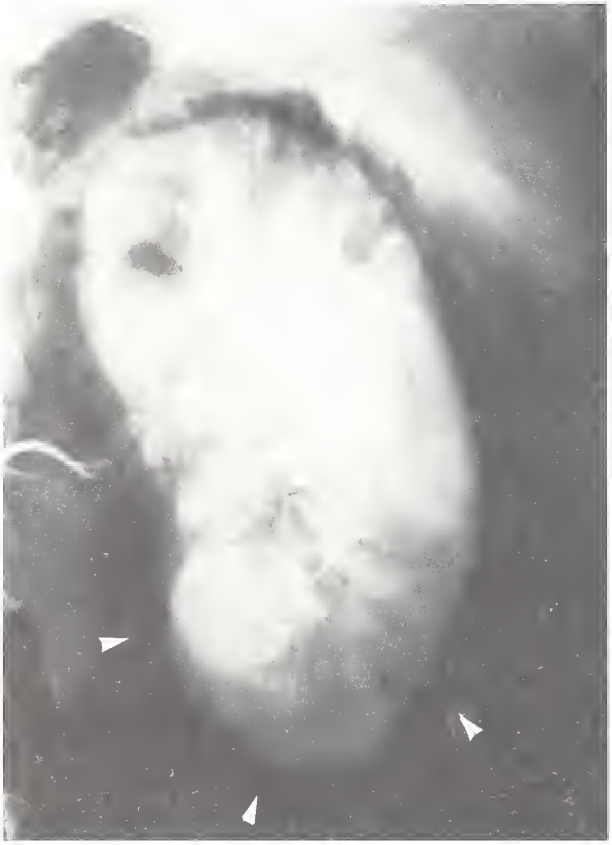


Figure 2

Renal angiogram demonstrated a 6 x 8 cm hypervascular mass arising from the posterior aspect of the left kidney having the typical appearance of a renal-cell carcinoma.

was contained within the right kidney. The suspected lesion in the right lobe of the liver measured 4 cm in diameter. This lesion had a ring-shaped capillary phase and delayed opacification beyond the venous phase favoring the diagnosis of hemangioma (Figure 3). A bone scan showed increased activity in all known fracture sites with no areas suspicious of metastatic disease.

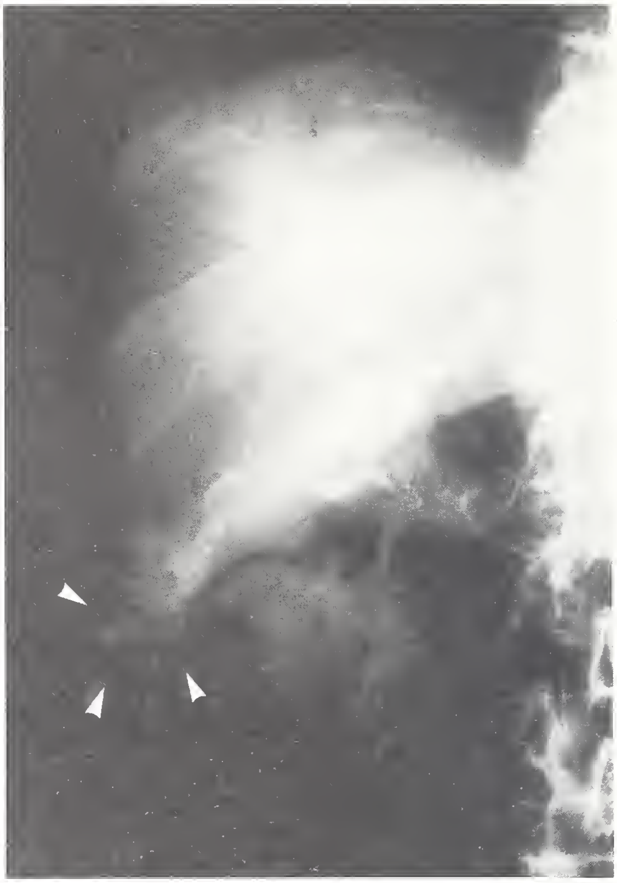


Figure 3

Celiac angiogram demonstrating a well-defined hypervascular lesion in the inferior margin of the right lobe of the liver. The ring-shaped capillary phase and delayed opacification beyond the venous phase was characteristic of a cavernous hemangioma.

Two weeks after the initial trauma, an exploratory laparotomy with a left radical nephrectomy was performed. The liver lesion had the surface appearance of a cavernous hemangioma consistent with the radiographic findings. The left kidney revealed a silent, localized, fibrously encapulated hypernephroma. The renal artery and vein were free of tumor thrombus.

The subsequent post-operative course was uneventful. The patient is now recovering and eager to get acquainted with his new grandson, born during his hospital stay.

As a result of the occurrence of a highly improbable sequence of events: the fire, his escape, multiple trauma, transfer to a local hospital, and the unexpected falling hematocrit, detection of the tumor, and the subsequent radical nephrectomy, my friend is still alive and looking forward to spending many more happy years with his family.

That this chain of circumstances happened exactly the way it did is at least a million-to-one-shot—one hell of a payoff for a blackjack player!

Study Reveals High-Risk Areas of Emergency Medical Practice

JOHN D. DUNN, M.D., J.D.

Chest pain. Febrile infants and adults. Wound care. Abdominal pain. Fractures of the spine or pelvis. A recent study of closed emergency room claims by the American College of Emergency Physicians (ACEP) showed that misdiagnoses in these five areas produced more than 50% of the dollar losses for the claims reported.

A breakdown of the five areas includes these misdiagnoses and dollar-loss percents:

- **Chest pain:** Misdiagnosis of myocardial infarction. −19.7%;
- **Febrile infants and adults:** Misdiagnosis of meningitis.–9.4%;
- **Wound care:** Foreign bodies, missed tendon, nerve, vessel injury or infection.–8.2%;
- **Abdominal pain:** Misdiagnosis of ectopic pregnancy and appendicitis.–2.1% and 5.0% respectively;
- **Fractures of the spine or pelvis:** Misdiagnosis or mismanagement.–6.3%.

The study analyzed 1,547 claims closed between 1979 and 1983. All claims were reported by hospital emergency department physicians. The payout in indemnity and expenses for the settled and litigated claims totaled $27 million.

Myocardial Infarction

The misdiagnosis of myocardial infarction is a misnamed category of claims, because many of the sudden deaths attributed to it have uncertain etiology. A better category would be catastrophic event after emergency visit for chest pain, resulting in death or severe injury.

The points to be emphasized are: Consider all incidents of chest pain as potentially high-risk conditions; evaluate for the probability of risk; take a reasonable history; adopt a liberal consultation policy; document what you ruled out as well as your findings; and admit for observation if serious questions exist.

Pulmonary embolism, dissecting aneurysm, and even pneumothorax also can be a cause of chest pain catastrophe. The defensible chart demonstrates consideration of the various possibilities.

Meningitis

The misdiagnosis of meningitis in the emergency department usually occurs when febrile infants present. Very rarely is this an adult disease, but when it is, the catastrophe can be just as dramatic.

Central nervous system function should be evaluated before sending a febrile infant or adult home; a subtle change can be very significant.

While bacteremia, sepsis, and meningitis are more likely to occur in the very young (under three months of age), extreme care should be taken with older infants as well. Close follow-up of these cases reduces the risk of delayed diagnosis and treatment.

Wounds

The frequency of claims involving wounds make this category a major cause of loss. In the ACEP study, 37% of the wound claims involved foreign bodies, 23% involved infection, and 20% were due to tendon, nerve or vascular compromise.

In general, liberal irrigation, X-rays, antibiotics, and careful patient education are ways to reduce losses in this area.

Ectopic Pregnancy

Many ectopic pregnancies will be misdiagnosed at the first visit, so a high level of suspicion is a way to help avoid risk. Complete menstrual history and differentiation from PID are difficult, but essential. Culdocentesis and ultrasound are very helpful once the pregnancy test is found positive. The old HCG is insensitive, and should probably be replaced by the more sensitive assay tests for patients with abnormal menses and abdominal pain.

Appendicitis

A high percentage of appendicitis cases rupture prior to surgery. In many cases, the patient already has been seen and discharged by another physician. This is why it is important to re-evaluate patients in a reasonable period of time.

The best advice here is to make a careful evaluation, giving particular attention to point tenderness in the lower right quadrant. This is the most consistent sign of appendicitis.

JOHN DALE DUNN, M.D., J.D., director of emergency services for Brownwood Regional Hospital, Brownwood, Texas. Dr. Dunn is a fellow of the American College of Emergency Medicine, the American Academy of Family Practice and the American College of Legal Medicine.

From the St. Paul Fire & Marine Insurance Company's *Malpractice Digest*, Spring 1987.

Rectal exams may indicate tenderness or a pelvic mass but often are difficult to interpret. An adequate abdominal exam, attentive history and complete follow-up will help avoid the problem of delayed diagnosis of appendicitis.

Fractures of the Spine or Pelvis

Fractures of the spine or pelvis represented 44% of the dollar losses attributable to fracture and orthopedic injury cases in the study.

Spine protection in clinically indicated situations will help avoid some injuries. The cases that pose the greatest threat are acceleration/deceleration injuries, the alert trauma patient with neck pain, patients with head injuries, the unresponsive patient with trauma, victims of falls, and drowning victims.

Rigid immobilization with boards and careful intubation of those with respiratory compromise help prevent adverse complications. Early documentation of neurologic status and movement of all extremities helps avoid missing the early signs of an already present cord injury.

Failure to diagnose pelvic fractures is a leading cause of death and disability in trauma cases. A thorough evaluation of trauma cases requires palpating the pelvis, doing a rectal exam, and taking X-rays, particularly in cases of massive trauma, fractures of the lower extremities, and patients in shock with no apparent source of blood loss.

Other Problem Areas

Many other risks confront emergency physicians in addition to those highlighted by the study results.

Failure to Diagnose Fractures or Dislocations

Undiagnosed fractures or dislocations are often related to either a failure to X-ray or to read X-rays properly.

Studies of X-rays indicate that the most commonly missed fractures are of the ribs, fingers and toes, bones of the mid-hand and mid-foot, elbows, proximal tibia, and navicular. Although fractures such as these are not often catastrophic, significant disabilities can occur.

Failure to Diagnose Infection

Respect high fevers in adults. Cases of unexplained sepsis in otherwise healthy individuals can cause death or serious disability. A recent study of patients with fevers above 102 degrees found that patients over the age of 60 with temperatures above 102 degrees generally have serious infections. It is important to remember that older people usually do not have a strong febrile response unless the infection is severe.

Children under one who have fevers above 102°F should be evaluated for sepsis, meningitis, and pneumonia.

Take care in discharging patients who have pneumonia. Pneumonia with respiratory distress syndrome has killed many patients, even healthy young patients. For children suffering from pneumonia, the decision to discharge should be made in consultation with the follow-up physician responsible for the child's ongoing care.

Pulmonary Embolism

Differentiating between hyperventilation and small pulmonary emboli is almost impossible in some cases. The important consistent finding in PE is a decreased PCO_2 and a respiratory alkalosis. Be vigilant in your efforts when dealing with the elderly, obese or disabled patient who has previous venous disease and presents with sudden shortness of breath—the most consistent sign of PE.

Pulmonary Infections

Frequently when a patient's PO_2 shows a hyperventilation state, the magnitude of the person's respiratory failure is not properly considered. When a patient who usually has normal lung function shows a PO_2 of less than 80 and a PCO_2 that is down, the blood gases are demonstrating an attempt to correct hypoxia. If a patient with pulmonary infection shows a minor change on the chest film and a lowered PO_2 along with a decreased PCO_2 think **carefully** before discharging him or her.

Even a patient in generally good health can develop acute adult respiratory distress syndrome, and chest film may not reveal the magnitude of the problem.

Hand and Foot Injuries

These injuries often result in significant disabilities. Use careful documentation and arrange for close follow-up.

Lacerations

This is another area where consultants should be used liberally. Referring patients with complicated facial lacerations to plastic surgeons and others trained in surgery may decrease the liability risk for emergency department physicians.

Open Injuries of the Extremities

A big problem with open injuries is the potential for nerve injury, vascular injury or infection. Antibiotics should be given at once to patients who have penetrating contaminated injuries. Patients with balloons and packing in their nose should also be on antibiotics. Patients with facial fractures should also be considered for antibiotics.

Infections of the Feet

Patients with compromised circulation who present with minor infections of the feet may develop complications and eventually lose their legs or undergo tremendous difficulties. A conservative approach in treating infections of the feet is best, particularly with older people and those with predisposing conditions such as diabetes, anemia, arteriosclerosis, or other compromises of immune status.

Drug and Toxin Ingestions

Ingestion of drugs or poisonous substances requires a certain level of suspicion, as well as appropriate protocols. Follow the drug or toxin index and use consultants liberally. Very few of these patients should be discharged because there is no guarantee that a mixed drug overdose was not ingested. Often, patients have taken a combination of substances and are difficult to evaluate for response to therapy.

Torsion of the Testicle

In the young pre-pubescent male, sudden onset of pain in the testicle with or without trauma should be considered for torsion.

Generally the epididymis is not in the proper posterior position, and the testicle is high-riding with an indurated cord. Frequently the testicle and the epididymis cannot be distinguished on palpation. Radionuclide scan and consultation should be undertaken whenever a high-riding, tender testicle with an abnormally placed epididymis is present. Unfortunately, some patients present with vague symptoms and inconsistent findings, and frequently a torsion/de-torsion situation occurs.

These cases are difficult to evaluate, and often there's a very limited period of time for surgical treatment. In cases of partial torsion, the grace period is unpredictable.

Central Nervous System Changes

Severe headaches, temporary changes in nervous system functioning, and cerebral-vascular incidents should be dealt with carefully. In many cases, emergency department physicians are sued when a patient they've seen and discharged subsequently has a stroke.

Conclusion

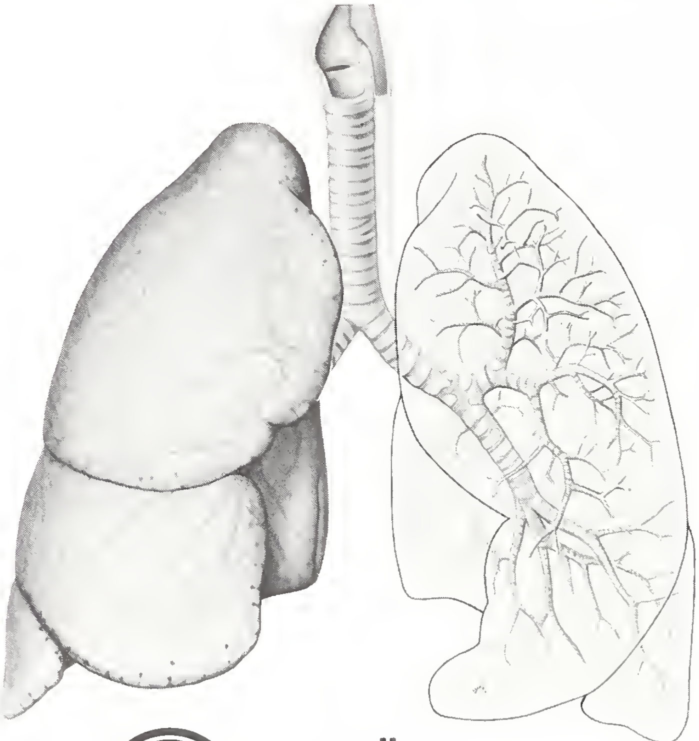
This article has identified the areas of greatest malpractice risk in the emergency department. While every case is different, there are some common practices emergency physicians should adopt to reduce their exposure to loss:

- Consider the potential high-risk events and pay special attention to the care provided. (Thorough medical care is the best insurance against adverse outcomes and malpractice claims.)
- Create a chart which supports your diagnosis, treatment, and disposition of the case.
- Rule out high-risk clinical entities prior to discharge. (Ninety percent or more of emergency department lawsuits involve discharged patients.)
- Make sure that complete, clear patient discharge instructions and close follow-up are part of your routine.

To help reduce the risk of malpractice claims in the emergency room:

- Establish a procedure for quick triage and early evaluation by nurses.
- Take vital signs, determine tetanus status, determine menstrual history of all women of childbearing age.
- Make sure an adequate examination of the injured part or the presenting symptom has been made. Document your findings.
- Repeat vital signs.
- Repeat evaluation to determine response to treatment.
- Establish a policy to enable quick admission (less than two hours) for any patient whose condition warrants such action.
- Communicate with patients concerning any delays, tests to be performed, consultations being planned and anything else that would cause the patient unnecessary concern.
- Make appropriate use of lab tests, particularly chemistries, in older patients with vague symptoms.
- Use consultants liberally and document all consultations.
- Carefully evaluate each discharge decision.
- Give complete discharge instructions, keeping in mind the most severe complications that could arise given the patient's current status. Include definite instructions to return to the emergency department if the condition worsens, or to see the referral physician before the scheduled visit, if necessary.
- Be certain that the patient or other responsible party understands the discharge instructions. Have them sign the discharge instruction sheet and chart after receiving the instructions.
- Attach a copy of the discharge sheet to the chart.
- Read X-rays and EKGs only when you have time to concentrate. (Use of a hot light and magnifier should be commonplace in emergency departments.)
- Remember that clear communication and good relationships with nursing and admittance staff are essential to a strong emergency department risk management program.

Consider the causative organisms...



Ceclor® cefaclor

250-mg Pulvules® t.i.d. offers effectiveness against the major causes of bacterial bronchitis

Haemophilus influenzae, Streptococcus pneumoniae
(ampicillin-susceptible and ampicillin-resistant)

Note: Ceclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

Ceclor® (cefaclor)

Summary. Consult the package literature for prescribing information.

Indications: Lower respiratory infections, including pneumonia, caused by susceptible strains of *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Streptococcus pyogenes* (group A β-hemolytic streptococci).

Contraindication:
Known allergy to cephalosporins.

Warnings:
CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:
- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:
- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology
- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children).
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly).

[072886R]

PA 8794 AMP

©1987, ELI LILLY AND COMPANY

Lilly

Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.

Eli Lilly Industries, Inc
Carolina, Puerto Rico 00630

700241

The Prevalence of Cancer—Connecticut, January 1, 1982

CENTERS FOR DISEASE CONTROL

Incidence and follow-up data from the Connecticut Tumor Registry were analyzed in order to estimate the prevalence of cancer.[1] A case was included in this analysis if the patient was alive on January 1, 1982, and had been diagnosed with cancer at any time during the study period, 1935 through 1981. Cases of basal- and squamous-cell cancer of the skin were not included. During the study period, 288,221 residents of Connecticut were diagnosed with invasive cancer. Of these, 53,628 (18.6%) were known to be living on January 1, 1982; 19,881 (6.9%) were lost to follow-up (i.e., reported alive with a date of last contact prior to January 1, 1982). The life-table method was used to estimate the number of patients among those lost to follow-up who were alive on January 1, 1982.[2]

On January 1, 1982, the age-adjusted* prevalence rate among males for all sites of cancer combined was 1,789/100,000 compared with 2,222/100,000 among females. In contrast, the age-adjusted cancer incidence rate for all sites among males diagnosed during the period 1978-1981 was almost one-third higher than among females (463/100,000 compared with 342/100,000). The mortality rate among males was about 50% higher than among females (246/100,000 compared with 154/100,000).[3] The relatively favorable survival rate for women with cancer affecting many of the common sites (e.g., breast and gynecological malignancies) and the poor survival rate for patients with lung cancer (the most common cancer in males) resulted in an age-adjusted prevalence rate among females that was about 25% higher than that among males.

The five most prevalent malignant diseases among males were prostate cancer (372/100,000), colon cancer (249/100,000), bladder cancer (233/100,000), rectal cancer (145/100,000), and lung cancer (135/100,000). The most prevalent cancer site in females was the breast (848/100,000), followed by corpus uteri (273/100,000), colon (224/100,000), cervix (138/100,000), and rectum (98/100,000).

The age-specific prevalence rates for all sites of cancer combined among females 20 to 59 years of age were about twice the rates for males (Figure 1). The rates for all sites combined for males >70 years of age were higher than those for females, partly because of the high prevalence of prostate cancer in elderly males. For females, prevalence rates for all sites combined ranged from 1,170/100,000 for those 30 to 49 years of age to 10,635/100,000 for those >70. For males, the rates for all sites combined increased from 598/100,000 for those 30 to 49 years old to 11,810/100,000 for those >70.

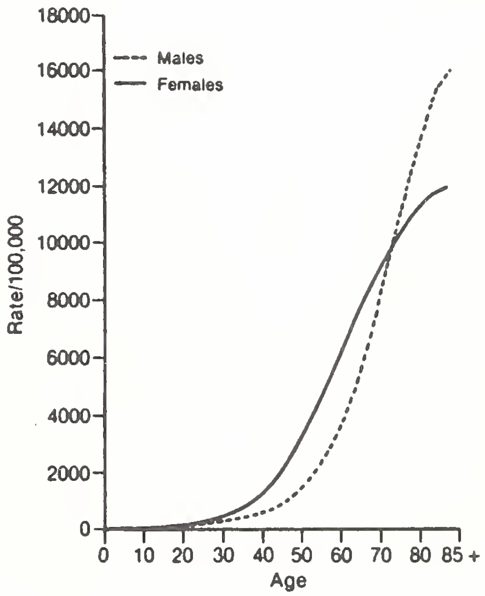


Figure 1

Age-specific prevalence rates of cancer for all sites combined among males and females — Connecticut, January 1, 1982

Editorial Note: The magnitude of the cancer problem has been measured traditionally by incidence and mortality statistics. The knowledge of cancer prevalence rates adds a new dimension to the assessment of this problem. While incidence reflects only the rate of occurrence of newly diagnosed cancer cases in one particular year, prevalence estimates include patients diagnosed during previous years who survived to the point in time of interest. Because most patients with cancer survive more than one year, prevalence is a useful indicator of the cancer burden on the health care system.

"Cured" and "uncured" cases were included in this study because, in many cases, the determination of cure is

---

* Adjusted to the 1980 U.S. population, U.S. Bureau of the Census.

Morbidity and Mortality Weekly Reports, Vol. 36, No. 13, 1987.

ambiguous. It has been suggested that even for so-called cancer survivors, the experience of cancer leaves a long-lasting impression.[4] Problems of employment, insurance, second malignancies, and reproduction linger long after the patient's treatment is completed and probably justify including all patients with a history of cancer in the prevalence calculations.

Approximately 2% of the population of the state of Connecticut had a history of cancer on January 1, 1982. Perhaps even more surprising is the fact that 11% of females and 12% of males ≥70 years of age had a history of cancer. Applying the age-specific prevalence rates to the estimated 1986 U.S. population[5] results in an estimate of approximately 5 million persons with a history of cancer in the United States. With the anticipated aging of the U.S. population, the number of individuals with a history of cancer can be expected to increase. Calculations using projected populations[5] and assuming constant prevalence rates yield prevalence estimates of 6.2 million for the year 2000 and 9.6 million for 2030. These projections should be viewed cautiously since the racial and ethnic composition of Connecticut is different from that of the United States as a whole and since incidence and survival patterns among blacks, whites, and other races are known to differ.

Advances in cancer treatment that improve patient survival will almost certainly increase the prevalence rates of cancer over time. With more and more patients living with a history of cancer, an increase in resources will be required to help patients with their medical problems, physical limitations, and social adjustments. However, the successful application of cancer prevention strategies, including smoking cessation and diet modification programs, should decrease the incidence of cancer and thereby lower cancer prevalence.

Reported by: AR Feldman, MD, L Kessler, ScD, MH Myers, PhD, MD Naughton, Surveillance and Operations Research Br and Biometry Br, Div of Cancer Prevention and Control, National Cancer Institute.

REFERENCES

1. Feldman AR, Kessler L, Myers MH, Naughton MD. The prevalence of cancer: estimates based on the Connecticut Tumor Registry. N Engl J Med 1986, 315:1394-7.
2. Cutler SJ, Ederer F. Maximum utilization of the life table method in analyzing survival. J Chron Dis 1958, 8:699-712.
3. National Cancer Institute. SEER program: cancer incidence and mortality in the United States, 1973-1981. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, National Institutes of Health, 1984; DHHS publication no. (NH)85-1837.
4. Mullan F. Seasons of survival: reflections of a physician with cancer. New Engl J Med 1985, 313:270-3.
5. Bureau of the Census. Projections of the population of the United States, by age, sex, and race: 1983 to 2080. Washington, DC: US Department of Commerce, 1984; (current population reports; series P-25; no. 952).

Tuberculosis and AIDS—Connecticut

Until 1983, the incidence of tuberculosis in Connecticut had steadily declined for several decades. In 1982, it reached its lowest point, 5.0 cases per 100,000 population. Since then, tuberculosis incidence in Connecticut has fluctuated above that level, with a rate of 6.2 in 1983, 5.6 in 1984, and 5.1 in 1985. A rate of 6.0 is projected for 1986. This would be an 18% increase over 1985. Concern about a possible association between human immunodeficiency virus (HIV) infection and the rise in tuberculosis morbidity led to an evaluation of data on acquired immuno-deficiency syndrome (AIDS) and tuberculosis in Connecticut.

The entire AIDS register was confidentially linked to the tuberculosis case register dating back to 1970 to determine the proportion of tuberculosis patients with a diagnosis of AIDS, the proportion of AIDS patients with tuberculosis, and the interval between the diagnosis of tuberculosis and AIDS. The following selected characteristics of those with both diagnoses were also studied: age, sex, race and ethnicity, geographic location by city size, and risk factors for a diagnosis of AIDS. Patients were placed in subgroups by each of these characteristics, and the incidence rate of tuberculosis in individuals with and without AIDS in each subgroup was calculated and compared. A 3-year incidence rate of tuberculosis was used for these comparisons because most diagnoses of tuberculosis in AIDS patients occurred in the 3-year period beginning 30 months before and ending 6 months after the diagnosis of AIDS.

As of September 1, 1986, 18 cases of tuberculosis had been diagnosed among the 299 cumulatively reported AIDS cases in Connecticut. The 18 tuberculosis patients with AIDS (TB/AIDS) ranged from 24 to 53 years of age, with a median of 33 years. Fourteen (78%) were male; 11 (61%) were black; 13 (72%) came from the six cities in Connecticut with a population of 100,000 or greater; and seven (39%) were intravenous drug abusers. One of the 18 cases of tuberculosis was diagnosed in 1973 and another in 1980. The remaining 16 cases were diagnosed after January 1, 1982, and represent 5.4% of all AIDS cases reported to date and 2.0% of all 816 tuberculosis cases diagnosed and reported from 1982 through 1986. When these 16 cases are analyzed by year of diagnosis, there appears to be no significant rise or fall in the frequency of tuberculosis patients with AIDS (TB/AIDS) for the years 1982 through 1986.

Compared with tuberculosis patients without AIDS in Connecticut, TB/AIDS patients were younger and more likely to be male, black, and from a large city. Compared with AIDS patients without tuberculosis, TB/AIDS patients were more likely to be black and from a large city and to have intravenous drug abuse as an AIDS risk factor. Age and sex distribution were similar in both groups.

Among the 18 TB/AIDS patients, the diagnosis of tuberculosis occurred from 10 years before to 19 months after the diagnosis of AIDS, with a median of 4 months before the diagnosis of AIDS. Fourteen (78%) of TB/AIDS patients were diagnosed as having tuberculosis within 3 years of their diagnosis of AIDS (2.5 years before to 0.5 years after).

Table 1 shows the crude 3-year incidence rate of tuberculosis in AIDS patients and in the general population without AIDS according to sex, race, and city size as well as the incidence rate adjusted for these three factors and age. In all groups, the rate of tuberculosis (risk ratio) in AIDS patients was more than 100 times the incidence in the general population.

Table 1

THREE-YEAR INCIDENCE OF TUBERCULOSIS IN 20- TO 49-YEAR-OLDS WITH AND WITHOUT AIDS, BY SELECTED DEMOGRAPHIC CHARACTERISTICS—CONNECTICUT, 1986

Characteristics	*Aids patients** *TB rate (cases)*	*General population†* *TB rate (cases)*	*Risk ratio§*
Sex			
Male	6,250 (10)	18.8 (119)	333
Female	7,692 (2)	12.7 (84)	605
Race			
Black	12,121 (8)	102.8 (95)	118
White	3,670 (4)	5.4 (63)	677
Other	– (0)	112.4 (45)	–
City Size			
≥100,000	9,677 (9)	44.7 (111)	216
<100,000	3,226 (3)	8.8 (92)	367
Adjusted¶	2,671 (12)	15.7 (203)	170.3

*Incidence of tuberculosis 2.5 years before to 0.5 years after diagnosis of AIDS per 100,000 AIDS patients as of 4/1/86.

†3-year incidence of tuberculosis per 100,000 individuals without AIDS, 1982-1984.

§Ratio of 3-year incidence of TB/AIDS to TB/non-AIDS.

¶Adjusted for age (5-year intervals), race, sex, and city size according to 1980 census.

CDC Editorial Note: The demographic characteristics of TB/AIDS patients in Connecticut are similar to those found elsewhere; individuals are most likely to come from groups that have a higher incidence of tuberculosis and are at risk for AIDS.[1-3]

The following factors suggest an association between tuberculosis and AIDS in Connecticut: the 5.4% incidence of tuberculosis in AIDS cases, the clustering of the development of tuberculosis and AIDS within a distinct time period (within 3 years of diagnosis of AIDS), and the 100-fold or greater risk of tuberculosis among AIDS patients than among the general population. The risk that persons with latent tuberculous infection who develop AIDS will develop clinically active tuberculosis cannot be determined from these data. However, to the extent that individuals with AIDS are representative of the general population in prevalence and incidence of tuberculous infection, this risk could be as much as 100- to 200-fold greater than that of their non-HIV-infected counterparts.

The total number of AIDS patients in the United States meeting the CDC surveillance case definition represents only a fraction of the number of persons with HIV infection. It has been estimated that, in 1985, for every diagnosed case of AIDS, there were 50 to 100 persons with HIV infection.[4] The number of tuberculosis patients with HIV infection but without AIDS in Connecticut may also exceed the number who have overt AIDS.

These data further support recently published guidelines that risk factors for HIV should be identified as part of the evaluation of persons with tuberculous infection.[5] HIV antibody testing should be offered, and, where there is both tuberculous infection and HIV infection, isoniazid preventive therapy should be offered. Conversely, persons who are positive for HIV antibody should be offered tuberculin skin testing, and isoniazid preventive therapy should be offered to reactors.[5]

Reported by JL Hadler, MD, MPH, State Epidemiologist, R Burger, Pulmonary Diseases and AIDS Programs, Connecticut State Dept of Health Svcs; Div of Tuberculosis Control, Center for Prevention Svcs, CDC.

REFERENCES

1. CDC. Tuberculosis and acquired immunodeficiency syndrome—Florida. MMWR 1986, 35:587-90.
2. Sunderam G, McDonald RJ, Maniatis T, Oleske J, Kapila R, Reichman LB. Tuberculosis as a manifestation of the acquired immunodeficiency syndrome (AIDS). JAMA 1986, 256:362-6.
3. Stoneburner RL, Kristal A. Increasing tuberculosis incidence and its relationship to acquired immunodeficiency syndrome in New York City. Atlanta, Georgia: International Conference on Acquired Immunodeficiency Syndrome (AIDS). April 14-17, 1985.
4. Curran JW, Morgan WM, Hardy AM, Jaffe HW, Darrow WW, Dowdle WR. The epidemiology of AIDS: current status and future prospects. Science 1985, 229:1352-7.
5. CDC. Diagnosis and management of mycobacterial infection and disease in persons with human T-lymphotropic virus type III/lymphadenopathy-associated virus infection. MMWR 1986, 35:448-52.

Avon
AVON MOTOR CARS
PORSCHE • AUDI • VOLKSWAGEN

TOM
WHIDDEN
Tactician Stars & Stripes
Winner
1987 America's Cup

"Join Me
And A Select Few In Europe
This Fall When We Pick Up Our
New 1988 Porsche's!"

Save up to $5,000.* on your 1988 Porsche with Avon Motor Cars' "Tyrolean Wunderfest" Holiday. Experience the thrill of taking possession of your new Porsche in Germany. Tour the factory, see new Porsche's being custom-built before your eyes. Red Line yours on the Autobahn and tour Porsche's Weissach proving ground. Grand tour around Germany with Tom Whidden while sampling some of Germany's finest restaurants.

PORSCHE
STUTTGART

Where else can you save money on a new 1988 Porsche and experience Germany's greatest attractions at the same time… where else, but Avon Motor Cars.

FOR FURTHER INFORMATION CONTACT:

TOM WEAVER

*Save up to $5,000 on selected models only.

"Where You Buy Is As Important As What You Buy!"

AVON AUTO BODY • **262 West Main St., Avon, CT • 678-0880 • 678-1594** • NOVA LEASING

Health Effects of Video Display Terminals

AMA COUNCIL ON SCIENTIFIC AFFAIRS

About 15 million video display terminals are in use in the United States, and their numbers will continue to swell. Much concern has been raised by their users about possible adverse health effects. The extensive collection of research papers and state-of-the-art reports on this subject are reviewed in this article.

The section Council on Preventive Medicine has urged that the Council on Scientific Affairs study the adverse health effects of video display terminals (VDTs). At its February 1986 meeting, the Council on Scientific Affairs agreed to review the current scientific literature and report its findings to the Section Council.

Until the advent of on-line and time-shared computer systems, the VDT was used principally as a means of communicating with the system (i.e., to send instructions and receive status messages from the system). The devices were few in number, and operator exposure was intermittent and of brief duration. As prices decreased and demands for an improved data input increased, the VDT has become a fixture in workplaces worldwide, and the number of VDTs in private homes has also grown considerably. According to the Center for Office Technology, about 15 million VDTs are in use in the United States; by 1990, their number will swell to 70 million, and possibly 100 million will be in use by the year 2000. It is estimated that 10 to 14 million workers in the United States and Canada – 7 million of whom are women of childbearing age – spend part or all of their working days at VDTs.

There is much concern about possible adverse health effects of VDTs. Labor unions and special interest groups, especially an organization of clerical workers known as "9 to 5," have advocated legislation to establish both equipment and labor standards.

If only one of every 1,000 operators develops a medical condition that can be related to the VDT, some 40,000 persons will be affected. Complaints have ranged from eyestrain, headaches, and backaches to the belief that radiation emissions may be responsible for birth defects and other reproductive disorders. At present, adverse health effects appear to be due to ergonomic factors, most of which can be solved by altering the mechanical design of the equipment; other effects will require improvements in management-employee relations.

The first studies on the effects of VDTs on health were performed in Sweden in the early 1970s and focused on how design of the VDT and its work environment might cause visual fatigue and ocular complaints. European interest still concentrates on effects of the visual and musculoskeletal systems. Radiation became the focus in the United States in 1977 when several cases of cataracts were reported in workers at the *New York Times;* emphasis has now spread to the potential hazards to reproduction, spurred by the births in 1979 in Toronto of four malformed infants to women who were VDT operators during their pregnancies. Numerous measurements and studies have been made in an effort to quell the anxiety. There are many research papers and state-of-the-art reviews on the subject.[1-15] One of the more recent and comprehensive reviews is that of Bergqvist;[4] others are by Guy[9] and Tuthill[14] (the former was done for the IBM Corp) and a book edited by Pearce.[11]

Alleged Hazards and Nature of Complaints

There are three ways in which VDTs may potentially affect human health: (1) radiation, (2) ergonomic effects, and (3) stress.

Radiation-Related Effects

Radiation has been the most frequently named hazard among VDT users, probably because of the similarity of the VDT and the conventional television (TV) receiver. The public became greatly alarmed about the TV receiver

---

From the Council on Scientific Affairs, American Medical Association, Chicago.

Report F of the Council on Scientific Affairs, adopted by the House of Delegates of the American Medical Association at the 1986 Interim Meeting.

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all of the facts and circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and patterns of practice evolve. This report reflects the views of the scientific literature as of December 1986.

Reprint requests to Council on Scientific Affairs, American Medical Association, 535 N Dearborn St, Chicago, IL 60610 (William R. Hendee, PhD).

as a possible source of cancer when it was informed that certain color TV sets manufactured before 1970 emitted x-rays.

In addition to ionizing radiation, the VDT has been thought to emit harmful levels of ultraviolet, infrared, microwave, and very low (VLF) and extremely low (ELF) (5- to 500-Hz) frequency electromagnetic radiation. The sources of each type of radiation are well defined: ionizing radiation (low-energy x-rays) and ultraviolet, visible, and infrared radiation are produced as the electron beam strikes the phosphor on the inner surface of the video screen, but the x-radiation is absorbed by the glass of the cathode ray tube. The horizontal deflection and high-voltage (flyback transformer) circuitry produce the VLF and ELF radiation. Microwaves most likely are not present.[14]

Although it is possible that all of these forms of radiation may be emitted from any of the units, extensive measurements in the United States and abroad determined the radiation levels to be well below acceptable standards of exposure even when the devices were tested under "worst case" conditions.[9,16-33] Some levels of radiation are even less than one might encounter around ordinary household appliances.

Sound waves, a form of radiation that is mechanical rather than electromagnetic, also have been proposed as being implicated in causing adverse effects. The noise of cooling fans and impact printers is a source of irritation and stress, but rarely contributes to hearing loss and is easily muffled by enclosures. More subtle sounds, both below and above the audible range of humans, are beginning to gain attention, but have not been studied extensively to determine their health effects on VDT users. These sounds are believed to originate primarily from the flyback transformer. Older persons, whose hearing is less acute, are less likely to perceive these sounds, which are beyond the normal audible range. Recently, a pulsed, VLF sound (15.9 kHz) was found coming from the unshielded flyback transformer.[17,21-23,28] Depending on the internal location of the transformer, very little exposure could be expected for an operator seated at the front. The amount of noise, even at the source, could be reduced to near zero with component shielding.

High levels of VLF ultrasound (79 to 150 dB) in industry have been reported to cause symptoms that include temporary hearing loss, nausea, fatigue, headache, and tinnitus. However, the highest reported VLF sound level from VDTs is only 68 dB.[16]

Cataracts. —The concern about radiation was first raised among members of the Newspaper Guild, which cited cases of cataracts in two employees, aged 29 and 35 years, of the *New York Times.* These and six other cases among guild members over a five-year period were thought to be related to VDT exposure. Two additional reports of cataracts in workers in a Baltimore newspaper office led to an ophthalmologic study at the National Institute for Occupational Safety and Health (NIOSH).[34] Results of this study indicated no greater incidence of cataracts among VDT users than among nonusers, although exposures were not long enough to provide conclusive evidence.

In a report of the National Research Council, ten anecdotal cases of cataracts occurred in VDT users; however, six patients had minor opacities that did not alter vision and four patients had a history of exposure to other cataractogens.[35] Several cases of cataracts among operators also were reported by Zaret.[36]

Other experts discount the risk of cataracts; Abernethy and Weiss, for instance, have stated before a U.S. House of Representatives subcommittee that 25% of the population has opacities of the lens without impaired vision and about 4% of the population between the ages of 35 and 45 years has naturally occurring cataracts. In addition, radiation-induced cataract is said to require exposures that are 10,000 times those expected from a VDT.[13]

Other eye disorders, such as eyestrain, irritation, and blurred vision, generally are not considered to be radiation related but result from muscular fatigue or lack of coordination in the ocular system. Complaints of this nature are discussed below.

Reproductive Disorders. —In a dozen or more office locations in the United States and Canada, clusters of birth defects and spontaneous abortions were reported among VDT operators. Investigations in the United States, Canada, Japan, and Scandinavian countries have failed to establish a causal link between these disorders and radiation or other factors in the offices.[4,14,37-39] Authorities have indicated that the clusters are more apt to be chance occurrences; according to Bond,[40] speaking for the American College of Obstetricians and Gynecologists, 50 such clusters could be expected to occur by chance over a three-year period, and as many as 10% to 20% or more of all pregnancies terminate naturally as spontaneous abortions; 2% to 4% of all live births have congenital malformations.

Another argument against the significance of the clusters is that the birth defects are nonspecific. In 14 babies born between May 1979 and May 1980 to women employed by the *Toronto Star,* seven had birth defects (i.e., clubfoot, underdeveloped eye, cleft palate, atrioventricular septal defect). Seven of the mothers had used VDTs during part of their pregnancies. However, cleft palate is often hereditary. Other adverse outcomes reported in clusters include Down's syndrome, spina bifida, bronchitis, premature births, respiratory disease, and stillbirths. Again, some of the disorders are heritable and are not expected to be due to radiation.[13]

Tuthill[14] also briefly reviewed several epidemiologic studies of reproductive outcomes among VDT operators. All of the studies were faulty in one way or another, and none could support an association between exposure and adverse outcome.

There is continuing reference to experiments of Delgado et al[41] in which incubating chicken eggs exposed to ELF

Prevent recurrences month after month*

ZOVIRAX®
(acyclovir)
CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psychosocial difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤10 ml/min/1.73/m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"- Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

---

*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

Wellcome
Burroughs Wellcome Co.
Research Triangle Park
North Carolina 27709

Copr. © 1986 Burroughs Wellcome Co. All rights reserved. 86-ZOV-5

radiation of 10 Hz, 100 Hz, and 1 kHz demonstrated a lack of morphogenesis. Ubeda et al[42] performed a similar experiment using a 100-Hz pulsed wave; their results pointed to a "window" effect, or the influence of pulse shape. Neither of these studies has been successfully replicated, and extrapolation of results to humans remains doubtful. This type of radiation is considered to be similar, except for waveform, to that of common household appliances.

Diagnostic ultrasound is approved for examinations during pregnancy, although questions about possible long-term safety continue to be raised.[43] No harm to the exposed human fetus has been apparent thus far, and levels from VDTs are thought to be even less of a hazard.

Facial Dermatitis. —Some bizarre cases of facial irritation (i.e., rash), apparently associated with VDT use have been observed by Tjonn[44] and Rycroft and Calnan.[45] According to Tjonn, an exanthema developed within two to six or more hours of VDT exposure; it began with erythema and proceeded to minor desquamation and small papules. It is claimed that this may be due to an electrostatic field set up between the operator and the VDT screen that, depending on the lack of humidity in the air, causes suspended particles in the air to be deposited on the operator's skin. The particles range in size from 0.03 to 1μm.[46] Adjustments in the relative humidity and ventilation of the workspace have eliminated this complaint.

Some investigators also have alleged that the electrostatic field at the surface of the screen causes an imbalance in the ions of the air, with an excess of positively charged air molecules surrounding the operator. These positive ions are presumed to account for the feeling of malaise and other related symptoms. There are a number of anecdotal accounts of this phenomenon, but the hypothesis remains controversial and unconvincing.

Epileptic Reactions. —The flickering nature of the video display has been thought to provoke seizures in epileptics,[47] and some individuals with this disorder have been advised not to work on a VDT without the consent of a physician. Most modern VDTs, however, have less flicker than a conventional TV receiver, and this matter should be of minor concern.

Ergonomically Related Effects

Visual. —Complaints of eyestrain, irritation, blurred vision, and headaches among VDT operators commonly occur after prolonged, intensive use of the eyes in many tasks that do not involve VDTs. These symptoms may be more pronounced in persons aged 40 years or older, especially if the individual does not have the proper visual correction. Extensive research on the causes and alleviation of eyestrain and related ocular discomforts has been reviewed.[8 11] The symptoms may be especially pronounced when general lighting is inadequate or causes glare; however, the American Academy of Ophthalmology[48] claims that this type of eye discomfort will not permanently damage the eye.

Another startling visual phenomenon has occurred when long periods are spent before a screen in which green characters are displayed on a dark background. The so-called McCullough effect, discovered in 1965, is seemingly harmless but long-lasting (as much as several weeks), and gives white letters and lines on a contrasting background an apparent pink color; a white sheet of paper against a white wall appears to have a pink fringe around its edges.[49]

Musculoskeletal. —Next to ocular or visual complaints, those most frequently mentioned are musculoskeletal, and are more prevalent among VDT users than other office workers. The neck, shoulders, back, and wrists are more commonly affected than the arms, hands, and legs. Typically reported are shooting pains in the arms; acute pain or stiffness in the arms, legs, neck, shoulders, and/or back; acute wrist or finger pain; anesthesia or paresthesia of the extremities; and chronic pain in the neck, shoulder, back, or extremities. Although the cause is usually attributed to an individual's posture, it is more likely to result from one or more of the following factors: inadequately designed desks and chairs that do not permit personalized adjustments; lack of exercise on the job; repetitive tasks, work pacing; personal traits; and work stress. The physical environment, such as furniture, keyboards, lighting, and glare reduction, can be designed or modified to eliminate the inadequacies. With a little effort and cost, comfort as well as work performance can be increased.[3,4 14]

The "bolt upright" posture position has been advocated in the past to avoid muscle strain, but there is little information on which to base a standard.[50] It has been suggested that "an angle of about 100 degrees or slightly more . . . (i.e., 'slouching') is actually preferable, provided the lower back receives good support."[51] Frequent changes in posture also may alleviate fatigue.[12]

In many instances, new equipment has been moved into an existing work environment with little consideration for the worker. Having invested in office automation, an organization is reluctant to see the equipment idle for a moment and often decries any time that is "wasted" on breaks. Tasks that once required office workers to move around frequently, such as filing or communicating with persons in other areas, are now a part of the automated system; workers are thus deprived of minor diversion, social interaction, and periodic exercise, which tend to relieve muscle strain and alleviate other stressful conditions on the job.

Stress

Quite often, musculoskeletal tension is only an additional manifestation of various stressors in the workplace; other signs and symptoms include psychosomatic and nervous disorders, disturbed sleep, coronary artery and heart disease, gastrointestinal upset, and endocrine imbalances. The underlying cause of the stress can be difficult to determine, especially when it is due to a personal, off-the-job matter. On the other hand, most of the stressors are well known in the workplace, having been encountered many times before under a different guise. A number of the major studies in this area have been reviewed.[14,52,53]

Rarely are all VDT operators afflicted by job stress. Especially at risk for stress are workers who must sit for long hours doing repetitive input operations while being closely monitored; Eason[54] considers these persons to be but a small subset of the entire VDT user population. For many, if not most, of the other users, office automation has brought relief from mundane chores of filing, writing, and typing and has created a new dimension in the management of information.

Fear of new technology and automation in particular, or "cyberphobia," is a recognized but often overlooked source of stress. Damodoran has stated,

> Fears about new technology may be expressed as health hazards because these consititute the only legitimate reasons in our society to reject the technology . . . To take complaints and fears about health only at their face value is to ignore the perhaps unspoken doubts and anxieties about technology de-skilling or indeed replacing the job, inabilities to cope with new procedures, a generalized loss of control over events and circumstances.[55]

The worker may feel a loss of control, reduced status, fear of job loss, and less need or opportunity to participate in the affairs of the organization. In most instances where this occurs, the tasks have become more impersonal, repetitive, and boring; there is a real or imagined sense of work overload; individual skills are underutilized; responsibilities are reduced; and social interaction with fellow workers is reduced or lacking. The situation is aggravated when one's performance is placed and/or measured by the machine. Preliminary results of a union survey of Southern New England Telephone employees indicated that almost three fourths of those reporting dizziness, headaches, and muscle aches were assigned to tasks that were monitored.[56] Counting every keystroke, "is one of the most offensive and pernicious aspects of our jobs."[12] Machine malfunctions can add to an already stressful situation, especially when a particular job must be finished on schedule.

Arndt concluded that "it is the nature of the task which imposes the stress, not the VDT per se."[3] Attempts to make systems more "user-friendly" or more acceptable to the average worker who is not computer oriented are continuing. Mnemonic or world-function commands presented in menu format are being substituted for unintelligible coding; a "mouse" has in some instances replaced the keyboard. Recent developments even point to the future use of the spoken voice as an input device.

There is general agreement on the value of periodic rest breaks; however, their nature and limits are best determined by the task. For example, a 15-minute rest is suggested after two hours of continuous work under moderate visual demands, and after every hour of continuous work with high visual demands (i.e., constant rapid muscular action or fixed posture) or with repetitive tasks. If possible, the break should occur at the worker's convenience and the work should be interspersed with other less demanding tasks.

Proposed Remedies

Legislation

At the urging of labor groups, six states (California, Colorado, Massachusetts, New Mexico, Washington, and Wisconsin) have enacted laws to establish machine performance and ergonomic standards for VDTs, and 30 states are considering such laws.[57] Germany, Norway, and Sweden have such standards and the movement is under way in Britain; two Canadian provinces are considering this matter. Until the scientific evidence becomes convincing that there are no adverse health hazards, the trend will probably continue under political pressure.

Because of lack of knowledge and lack of consensus on what is required, the National Research Council and others do not believe that mandatory standards should be established. Poorly framed standards may cause stagnation in the technology and inflexibility in dealing with future issues.[13] An ample number of ergonomic guidelines are available.[58,59]

Education

One of the foremost needs for this expanding technology is to provide educational material and programs to VDT users. A coalition of employers, manufacturers, and professional and trade associations – known as the Center for Office Technology – has been formed in Washington, D.C., as a clearinghouse for information on research pertaining to office automation.[60]

Proposed and Pending Research

Several cohort studies are under way to investigate the chronic effects of low-level exposures to VDT radiation and stress.

Selikoff of the Mount Sinai School of Medicine in New York has begun a prospective four-year investigation of 3,000 to 5,000 female VDT operators and an equal number of controls to determine if VDTs adversely affect pregnancy.[61]

Brix and Butler at the University of Michigan sought to determine if the risk of miscarriages or congenital defects was increased in a group of 4,215 clerical employees.[62] The first report of the study was given at the annual meeting of the American Public Health Association in Las Vegas (*Wall Street Journal*, Sept. 30, 1986, p. 10). From a total of 817 pregnancies, there were about as many miscarriages as expected among the women who worked for up to 20 hours per week at VDTs, whereas women who worked at VDTs more than 20 hours per week had only slightly more miscarriages than were expected.

In 1985, NIOSH was planning to begin a large-scale retrospective study of married female telephone operators at Southern Bell, South Central Bell, and AT&T to look for a possible association between work with VDTs and adverse pregnancy outcomes. It was thwarted by the Office of Management and Budget, based in part on the advice of scientists from Bell South and Harvard and Brown universities; the latter group claimed that it was "inconceivable that the study would yield results that were definitive, unequivocal, or credible." The Office of Management and Budget has, meanwhile, permitted resumption of the study on the condition that NIOSH "correct certain methodological deficiencies" and "improve the validity of the study results." A NIOSH peer review committee is considering these terms before proceeding further.[63,64]

According to a late report, the Secretary of Health and Human Services is being urged to override Office of Management and Budget's demands and to restore to the study the controversial questions about stress and fertility.[65]

Conclusions

No association has been found thus far between radiation emissions from VDTs and reported spontaneous abortions, birth defects, cataracts, or other injuries. Representative equipment has been monitored for all forms of electromagnetic and other emissions, and the levels have been well below presently accepted standards of exposure. Complaints of health effects, both perceived and real, are most apt to be ergonomically related or to result from stressors peculiar to the work or work environment. It is also inappropriate to classify all VDT operators without regard to their individual tasks, especially if future studies are conducted on these workers. For the moment, it is essential to realize that the nature of the task may be more responsible for workers' symptoms than the equipment.

Recommendations

The Council on Scientific Affairs recommends that

1. the NIOSH and other groups continue investigations into the nature of VDT worker complaints, with emphasis on ergonomics and stress-reduction measures to reduce worker discomforts and to improve the job environment;

2. the American Medical Association encourage corporate management to be more cognizant of the importance of the man-machine interface, to provide a work environment that reflects this cognizance, and to encourage effective communication between system planners and users; and

3. the AMA continue to monitor this field and alert physicians and other responsible parties if adverse health effects appear to be suggested.

REFERENCES

1. Video Displays: A Briefing Book, rev 2. Washington DC, Computer and Business Equipment Manufacturers Association, 1984.
2. Health and Safety Aspects of Video Display Terminals. New York, American Council on Science and Health, 1983.
3. Arndt R: Working posture and musculoskeletal problems of video display terminal operators: Review and reappraisal. Am Ind Hyg Assoc J 1983, 44:437-446.
4. Bergqvist UOV: Video display terminals and health. Scand J Work Environ Health 1984, 10(suppl 2):1-87.
5. VDTs in the Workplace: A Study of the Effects on Employment. Bureau of National Affairs, 1984.
6. Cox C: Health Hazards of Video Display Terminals, publication 81-129. Cincinnati, National Institute for Occupational Safety and Health, 1981.
7. Gallina PL: Video Display Terminals (VDTs): An Occupational Health and Safety Bibliography With Selected Annotations, publication B83-1EF. Hamilton, Ontario, Canadian Centre for Occupational Health and Safety, 1983.
8. Grandjean E, Vigliani E (eds): Ergonomic Aspects of Video Display Terminals. London, Taylor & Francis Ltd, 1980.
9. Guy AW: Health Hazards Assessment of Radiofrequency Electromagnetic Fields Emitted by Video Display Terminals. Seattle, IBM Corp, 1984.
10. Olson BM: Practical Questions and Answer Guide on VDTs (Video Display Terminals) for BEEs (Base Bioenvironmental Engineers), publication OEHL-85-059RN111BEJ. Brooks Air Force Base, Texas, US Air Force Occupational and Environmental Health Laboratory, Jan 1, 1985.
11. Pearce BG (ed): Health Hazards of VDTs. New York, John Wiley & Sons Inc, 1984.
12. A Brief Review of Potential Health Effects of Video Display Terminals: Testimony Before the Study Subcommittee on Hazards of VDTs of the House Committee on Labor and Consumer Affairs, 99th Cong, first sess (1985) (testimony of FD Richardson III).
13. A Staff Report on the Oversight of OSHA with Respect to Video Display Terminals in the Workplace. Subcommittee on Health and Safety of the US House Committee on Education and Labor, 1985.
14. Tuthill RW: Assessment of the Literature on Health Effects Related to Video Display Terminals: Final Report to the Massachusetts Department of Public Health. Boston, Dept of Health Statistics and Research, Massachusetts Dept of Public Health, 1985.
15. Marriott IA, Stuchly MA: Health aspects of work with visual display terminals. J Occup Med 1986, 28:833-848.
16. Bureau of Radiological Health: An Evaluation of Radiation Emission From Video Display Terminals, publication FDA 81-8153. US Dept of Health and Human Resources, 1981.
17. Chatterjee DS, Crookes AJ: VDUs and relative annoyance from high frequency noise. J Occup Med 1984, 26:552-553.
18. Cox EA: Electromagnetic radiation emissions from video display units: A review. Displays: Technology and Applications 1983, 4:7-10.
19. Environmental Health Directorate: Investigation of Radiation Emissions From Video Display Terminals, publication 83-EHD-91. Canada, National Health and Welfare, 1983.
20. Labour Canada: In the Chips: Opportunities, People, Partnerships: Report to the Labour Canada Task Force on Micro-Electronics and Employment. Ottawa, Minister of Supply and Services, 1982.
21. Marha K: Very Low Frequency Fields Near VDTs and an Example of Their Removal, publication 83-5E. Hamilton, Ontario, Canadian Centre for Occupational Health and Safety, 1983.
22. Marha K, Charron D: The Very Low Frequency (VLF) Emission Testing of CCOHS Video Display Terminals, publication 83-3E. Hamilton, Ontario, Canadian Centre for Occupational Health and Safety, 1983.
23. Marha K, Charron D: The distribution of a pulsed very low frequency electric field around video display terminals. Health Phys 1985, 49:517-521.
24. Moss CE, Murray WE, Parr WH, et al: A Report of Electromagnetic Radiation Surveys of Video Display Terminals, Dept of Health, Education, and Welfare (NIOSH) publication 78-129. Cincinnati, National Institute for Occupational Safety and Health, 1977.
25. Murray WE, Moss CE, Parr WH, et al: A radiation and industrial hygiene survey of video display terminal operations. Hum Factors 1981, 23:413-520.

26. Murray WE, Moss CE, Parr WH, et al: Potential Health Hazards of Video Display Terminals, Dept of Health and Human Services (NIOSH) publication 81-129. Cincinnati, National Institute for Occupational Safety and Health, 1981.

27. Pomroy C, Noel L: Low-background radiation measurements on video display terminals. Health Phys 1984, 46:413-417.

28. Stuchly MA, Repacholi MH, Lecuyer DW, et al: Radiofrequency emissions from video display terminals. Health Phys 1983, 45(3):772-775.

29. Stuchly MA, Lecuyer DW, Mann RD: Extremely low frequency (5-500 Hz) electromagnetic emissions from video display terminals and other devices. Health Phys 1983, 45(3):713-722.

30. Terrana T, Merluzzi F, Giudici E: Electromagnetic radiations emitted by video display units, in Grandjean E, Vigliani E (eds): Ergonomic Aspects of Video Display Terminals. London, Taylor & Francis Ltd, 1980.

31. Weiss MM: The video display terminals: Is there a radiation hazard? J Occup Med 1983, 25:98-100.

32. Weiss MM, Petersen RC: Electromagnetic radiation emitted from video computer terminals. Am Ind Hyg Assoc J 1979, 40:300-309.

33. Wolbarsht ML, O'Foghludha FA, Sliney DH, et al: Electromagnetic emission from video display units; a non-hazard, in Wohlbarsht ML, Sliney DH (eds): Ocular Effects of Non-ionizing Radiation. Bellingham, Wash, Society of Photo-Opitcal Engineers, 1980.

34. Smith AB, Tanaka S, Halperin W, et al: Report of a Cross-Sectional Survey of Video Display Terminal (VDT) Users at the Baltimore Sun. Cincinnati, National Institute for Occupational Safety and Health, 1982.

35. National Research Council: Video Displays, Work and Vision. Washington, DC, National Academy Press, 1983.

36. Zaret MM: Cataracts and video display units, in Pearce BG (ed): Health Hazards of VDTs. New York, John Wiley & Sons Inc, 1984.

37. Ericson A, Kallen B: An epidemiological study of work with video screens and pregnancy outcomes: I. A registry study. Am J Indust Med 1986, 9:447-457.

38. Ericson A, Kallen B: An epidemiological study of work with video screens and pregnancy outcomes: II. A case-control study. Am J Indust Med 1986, 9:459-475.

39. Kurppa K, Holmberg PC, Rantala K, et al: Birth defects and exposure to video display terminals during pregnancy: A Finnish case-referent study. Scand J Work Environ Health 1985, 11:353-356.

40. Video Display Terminals and Reproductive Health: Statement of the American College of Obstetricians and Gynecologists Before the Sub-committee on Health and Safety of the US House Committee on Education and Labor, 99th Cong, first sess (1984) (testimony of MB Bond).

41. Delgado JMR, Leal J, Monteoagudo JL, et al: Embryological changes by weak, extremely low frequency electromagnetic fields. J Anat 1982, 134:533-551.

42. Ubeda A, Leal J, Trillo MA, et al: Pulse shape of magnetic fields influences chick embryogenesis. J Anat 1983, 137:513-636.

43. Consensus Conference: The use of diagnostic ultrasound imaging during pregnancy. JAMA 1984, 252:669-672.

44. Tjonn HH: Report of facial rashes among VDU operators in Norway, in Pearce BG (ed): Health Hazards of VDTs. New York, John Wiley & Sons Inc, 1984.

45. Rycroft RJG, Calnan CD: Facial rashes among video display unit operators, in Pearce BG (ed): Health Hazards of VDTs. New York, John Wiley & Sons Inc, 1984.

46. Cato Olsen W: Electric Field Aerosol Exposure in Video Display Unit Environments. Bergen, Norway, CHR Michelsen Institute, 1981.

47. Binnie CD, Darby CE, Hindley AY: Electroencephalographic changes in epileptics while watching television. Br Med J 1975, 4:378-379.

48. The Effects of Video Display Terminals on Vision: Statement of the American Academy of Ophthalmology Before the Subcommittee on Health and Safety of the US House Committee on Education and Labor, 99th Cong, first sess (1984).

49. Greenwald MJ, Greenwald SL, Arch M, et al: Long-lasting visual aftereffect from viewing a computer video display. N Engl J Med 1983, 309:315.

50. Starr SJ, Shute SJ, Thompson CR: Relating posture to discomfort in VDT use. J Occup Med 1985, 27:269-271.

51. Punnett L: Use of ergonomics 'buzz-word' no guarantee that workers will benefit, researcher says. Occup Saf Health Reporter 1986, 15:1215.

52. Westin AF, Schweder HA, Baker MA, et al: The Changing Workplace: A Guide to Managing the People, Organizational and Regulatory Aspects of Office Technology. White Plains, NY, Knowledge Industry Publications, 1985.

53. McLean AA: High Tech Survival Kit: Managing Your Stress, New York, John Wiley & Sons Inc, 1986.

54. Eason KD: Job design and VDU operation, in Pearce BG (ed): Health Hazards of VDTs. New York, John Wiley & Sons Inc, 1984.

55. Damodoran L: Measures of user acceptability, in Pearce BG (ed): Health Hazards of VDTs. New York, John Wiley & Sons Inc, 1984.

56. Melita R: Survey of VDT users indicates link between health problems, monitoring. Occup Saf Health Reporter 1985, 15(27):560.

57. Maryland legislature kills measures that would have required ergonomic stations. Occup Saf Health Reporter 1986, 15(42):1071.

58. Video Display Terminals: Preliminary Guidelines for Selection, Installation and Use. Short Hills, NJ, Bell Laboratories.

59. Cakir A, Hart DJ, Stewart TFM: Video Display Terminals: A Manual Covering Ergonomics, Work Place Design, Health and Safety, Task Organization. New York, John Wiley & Sons Inc, 1980.

60. Center for Office Technology established. Occup Health Saf Lett 1985, 15:7.

61. Display terminals: New study announced. Occup Saf Health Reporter 1986, 15(60):1283.

62. University of Michigan study will probe links between pregnancy problems, VDT use. Occup Saf Health Reporter 1986, 16:885-886.

63. NIOSH to study effects of VDTs on female reproductive systems. Occup Saf Health Reporter 1985, 14(30):565-566.

64. OMB decision allows VDT study: NIOSH wary about OMB's requirements. Occup Saf Health Reporter 1986, 16(2):19-20.

65. Health and Human Services secretary urged by union to override OMB restrictions on NIOSH pregnancy study. Occup Saf Health Reporter 1986, 16(30):821.

CSMS Members:

Let's Talk About A New Concept In Health Care.

Century 2000.

Century 2000. A Preferred Provider Program in which more than 4,000 health care providers in this state are now participating.

Century 2000. Providing quality with an emphasis on preventive care.

Century 2000. Reducing costs by encouraging members to use its managed care network of Preferred Providers.

Century 2000. For information on how you can become a Preferred Provider call 1-800-922-1742 extension 5137.

Blue Cross
Blue Shield
of Connecticut

View from the Hill

JAMES E. BRYAN

American physicians are justifiably proud of their profession's world leadership in biomedical research, education and technologic refinement; they also find solid satisfaction in the profession's high standing in public esteem. But many physicians and their cognizant friends are concerned about the trend toward commercialism in an increasingly overpopulated profession, laboring under persistent political and corporate pressures to conform itself to the competitive and exploitative practices of the marketplace.

Medicine today confronts a sociomedical syndrome which Arnold Relman, M.D., distinguished editor of *The New England Journal of Medicine,* has identified as the "American medical care dilemma." Discussing this concept recently with a group of health care journalists, Dr. Relman pointed to two unhappy paradoxes that give us all cause for concern regarding the state of American medicine.

First, Dr. Relman pointed out that although Americans spend far more money on health care than the British or Canadians do, we have achieved a far less equitable distribution of medical service than they have.

Second, more people in America today are losing access to needed medical care than are gaining it. More than 15 percent of us have neither health insurance nor entitlement to medical care, and 8 percent more have inadequate coverage even for run-of-the-mill medical needs. These numbers are growing as insured workers lose employment, and new, entry-level jobs are filled by employees not receiving health care benefits. Beyond these elementary shortfalls, we have to deal with a nearly universal lack of protection against the financial disaster of long-term or catastrophic illness.

Dr. Relman listed five elements comprising the American medical care dilemma, all of which are of grave concern to physicians and their patients:

(1) "The Myth of the Market" is an ideologic delusion, shared by the current political hierarchy and many industrialists, that medical service or health care is a consumer product, that its quality, efficacy and cost are measurable, and that its "prices" are determined by competition in the market.

(2) "The Corporate Influence" is the assumption that physicians can be integrated into business enterprises, devoting themselves to the profit-making objectives of the corporation, rather than to the health care needs of individual patients.

(3) The looming "glut" of physicians may produce unwholesome price competition and possible overmedicalization of society.

(4) Dr. Relman finds a lack of concern among public officials and community leaders for the genuine problems and needs of preventive medicine and medical care.

(5) The high costs and overuse of medical technology are also of concern. Dr. Relman declared that medical technology has "run amok" with inadequately evaluated, redundant, and sometimes counterproductive costs and consequences. He suggested that the extravagant reliance upon technology, particularly the excessive use of diagnostic scans, antibiotics and repetitive blood tests, discourages good primary care, and negates the "personal touch." Dr. Relman also called attention to "inexplicable variation in methodology" and, he might have added, equally wide variation in charges for common procedures, as noted by other observers.

As for the government's role, Dr. Relman asserted that the government "does not spend enough on clinical trials," noting that the "FDA is not even required to determine that a new drug is more—or *as*—effective as its predecessor."

He summarized the current state of the profession as "in poor morale, too numerous, too specialized, facing a highly uncertian future, and needing help from society to decide what kind of doctors people want—but getting conflicting signals from them."

"The United States can afford a good health care system, probably for less than we now spend," Dr. Relman said, "since we now spend more and get less than we should." As for national health insurance, he speculated that while it "is not now in the wings, its time will come, and it is not far distant." But Dr. Relman views national health

---

JAMES E. BRYAN, Washington Correspondent, *American Family Physician.*

Reprinted from *American Family Physician.* Copyright 1987 by American Academy of Family Physicians.

insurance as a practical—not an ideologic—proposal, suggesting that he "would not be surprised if Republicans took the lead in proposing a national health insurance program." The current vigor and determination of industry—big and little—to reduce its labor health care costs or shift them to public agencies lends credence to the surmise that the party of big business may ultimately carry the torch for national health insurance. If so, anyone whose ear is attuned to the present congressional clamor for radical reform in health care economics must wonder how long it will be before the GOP minority on the Hill executes an ideologic somersault to steal this issue from the timorous Democrats.

Dr. Relman's presentation was based on a paper, devoted to comparing the British and American health care systems, that he presented recently at a conference of British and American physicians in London. Dr. Relman suggested that just as private medicine has survived the British National Health Service, so he expected the private sector in American medicine would not disappear following enactment of a national health insurance plan in the United States. Further, he assured us that the rationing of medical care is not inevitable in our country, nor will American physicians have to settle for most of the limitations British physicians have had to accept.

A strong advocate of consultative practice, Dr. Relman said that physicians who deliver primary care often feel isolated in solo practice and express the need for a collegial ambiance. Hence, in group practice, Dr. Relman emphasized his preference for the "group-model" HMO, rather than the "staff model" which he sees as falling short of the ideal. He concluded his presentation with the question: To whom will doctors report tomorrow? For whom will the American physician be an advocate in the days ahead?

Although the quality of professional service is high, the general situation in which American physicians practice their profession today is "worse than a year ago," in the view of James S. Todd, M.D., senior deputy executive vice president of the American Medical Association. Dr. Todd, who also addressed the journalists' conference, expressed a candid opinion that "the Reagan administration has done more harm to American medicine than that of any previous president."

It was clear that Dr. Todd—who several years ago, while in private practice, distinguished himself as principal author of the latest general revision of the AMA Code of Professional Ethics—deplores the political-ideologic concept of medical care as a commercial product. He rejects the notion that medical service can be packaged and purchased like any other article in the competitive marketplace. "There is no altruism in the competitive system," Dr. Todd asserted. "Cost is important, but quality (or cost-effectiveness) is vital, and the marketplace directly threatens the quality of medical care as a human transaction."

Noting that the dominant political ideology is not sympathetic to professional idealism, Dr.Todd charged that the Administration, through the Office of Management and Budget, seeks to control the profession itself by controlling medical fees and charges. Responding to a query about the refusal of many physicians to "participate" in accepting federally assigned maximum fees for all Medicare patients, Dr. Todd observed that these physicians are simply reserving the privilege of determining their own conditions of service. They are "not about to accept the division of the profession into two classes: one, those who permit the government to dictate their terms of service; the other, those who prefer to make their own decisions." Dr. Todd reported that "nonparticipating" physicians register a high degree of actual participation in acceptance of assigned fees in appropriate circumstances.

The "health care tripod" comprises access, cost and quality—all of which are adversely affected by the professional liability crisis: (a) access to care is constricted by the withdrawal of many physicians from active practice, in protest against unacceptable insurance costs; (b) costs of care are driven upward by premium rates swollen by "nuisance" suits, irresponsible complaints and the necessity to indulge in "defensive medicine," and (c) both access to and quality of care rendered are imperiled by the deepening adversarial mistrust formented between doctor and patient by this deplorable crisis.

"Professional liability," said Dr. Todd, "is everywhere the physician's major problem." Sixty to 70 percent of the physician's premium for malpractice insurance is consumed in processing complaints or claims—split between insurors and attorneys.

"But the physician," says Dr. Todd, "remains the patient's one and only advocate."

Editorial

Medical Professionals Are Mandatory Reporters for Protective Services to the Elderly

Connecticut state law designates physicians, nurses, and employees of nursing facilities as mandatory reporters in a program which protects older citizens from abuse, neglect, exploitation and abandonment. Protective Services to the Elderly (PSE), serving Connecticut residents 60 years of age or older, regardless of financial status, is jointly administered by the state Departments of Human Resources and Aging.

PSE was established in 1977 under chapter 814 of the Connecticut General Statutes. The law currently requires that medical and other professionals refer elderly persons believed to be abused, neglected, exploited, or abandoned to a regional ombudsman of the Department on Aging. It is important to note that "neglected" can include "self-neglect" or loss of self-care abilities, as well as neglect by another person. Indeed, the majority of referrals to this program involve people no longer able to care for their own needs.

The ombudsman visits a client promptly to ascertain whether ongoing Protective Services intervention is needed and whether an emergency exists. The client may choose to accept or reject services. If he or she is confused or seems unable to decide in his or her best interest, the ombudsman may refer to the Department of Human Resources without the person's consent on the grounds that the client "lacks the capacity to consent." However, it should be emphasized that this is a voluntary program unless the probate court is asked to intervene and appoint a conservator to make decisions for the client.

Ongoing case planning and case management services are provided by social workers from the Department of Human Resources. A follow-up visit must be made within ten days after a referral is received from the ombudsman. Emergencies, of course, are addressed immediately. The case plan may include direct services, such as counseling or assisting the client or family members to make more appropriate living arrangements. The social worker also arranges and coordinates services provided by other professionals, including home care, adult day care, medical or psychiatric treatment, transportation, and any other supportive services. The client or family is helped to make payment arrangements if necessary. There is no charge for Protective Services itself.

In all planning, the goal is to maintain the person as independently as is safely possible. Department of Human Resources staff remain involved until all safeguards are in place. In certain circumstances, the department may petition probate court for the appointment of a conservator, a step taken only after exploring all possible alternatives. Family members are encouraged to participate in planning and to act as conservators whenever they are able.

The Protective Services program handles an average of 800 cases each month statewide. For example:

- A 72-year-old, widowed woman had been missing medical appointments during the past three years. Although calls were made the day before each appointment to remind her, she would fail to appear or to call and cancel. Subsequently, she would call, saying she needed to make an appointment. The doctor and office nurse noticed the patient's growing confusion, but were unaware of ways to assist her other than to remind her of the appointments.

  This client was referred to Protective Services by a neighbor. The Department of Human Resources social worker helped her to keep scheduled appointments. An appropriate care plan was developed with the physician's input.
- A 75-year-old man lived with his son, who was a substance abuser. He sought medical treatment for bruises and a black eye, revealing to the doctor that he had received the injuries from his son. He was reluctant to take legal action both because he would be embarrassed to do so and because he feared retaliation. The physician referred this client to Protective Services to the Elderly.

Medical professionals are in a prime position to observe changes in a patient's functioning. Deterioration in self-care, or loss of memory, may not necessarily indicate a need for Protective Services' intervention, but if there are concerns, the ombudsmen and the staff at the Department of Human Resources are glad to discuss the situation and to help the health care professional to decide whether to make a referral.

The regional ombudsmen are:
Hartford area - David Cayer - 566-5342
Central Region - Barbara Rascona - 344-7482
Eastern Region - Meredith Savage - 886-0521
Southwest Region - Judith Sugarman - 579-6919
Northwest Region - Shelia Lee - 573-0866
South Central Region - Frances Impellizzeri - 789-6913

For more information about the Protective Services program, please call the Department of Human Resources in Hartford at 566-4369; the Department on Aging in Hartford at 566-7810; or local offices of either department (listed in the blue pages of phone books).

Maria Pappas-Vereb

Social worker, Protective Services to the Elderly, Connecticut Department of Human Resources, New Haven, Ct.

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

JAMES P. ORPHANOS, M.D.
President

JAMES P. ORPHANOS, M.D.

Born: July 19, 1928, Wilkes-Barre, Pa

Education:
1950—Rutgers University, A.B.
1950-1951—Rutgers University School of Chemistry
1951-1952—College of the City of New York, Baruch School of Business
1954-1958—New York Medical College, M.D.
1958-1959—Internship: Greenwich Hospital
1959-1960—Residency: Internal Medicine, Greenwich Hospital

Military Service
1952-1954—Sgt., 153d Ordnance Integrated Fire Control Repair Detachment, Fairchild Air Force Base, Spokane, Wash

Hospital Appointments:
1961-1986—Senior Attending Physician, Greenwich Hospital

Boards:
1970—Charter Diplomate, American Board of Family Practice
1977—Recertification, American Board of Family Practice
1984—Recertification, American Board of Family Practice

Professional Associations:
American Medical Association
Connecticut State Medical Society
Fairfield County Medical Association
Greenwich Medical Society
American Rheumatism Association

Activities:
President, Rock Ridge Association, Greenwich, Conn
1976 to date—Representative Town Meeting
1984-1985—President, Greenwich Medical Society
1981-1985—Councillor, Connecticut State Medical Society
1985-1986—Vice-President, Connecticut State Medical Society
1986-1987—President-Elect, Connecticut State Medical Society
1984 to date—Secretary, Connecticut Medical Insurance Company
1986 to date—President, Connecticut Medical Management Inc.
1986 to date—Secretary, M.D. Health Plan
1986 to date—Director, CSMS-IPA

Inaugural Address of the Incoming President

Annual Meeting – House of Delegates

May 6, 1987

JAMES P. ORPHANOS, M.D.

As I stand here, and assume office as the 150th President of this venerable Connecticut State Medical Society, I cannot help but stop and think of how I got here and of why I am here.

I can assure you that I did not plan getting here. I may either thank, or blame, it all on one Dr. Fred Weber. Many of you old timers will remember Fred Weber as president of this Society a number of years ago. He was Chief of Medicine at the Greenwich Hospital when I arrived there as an intern many moons ago. He was a gentleman and a scholar, an asset to any institution. One evening about six years ago, as I was rounding, we met in one of the hallways. We stopped and chatted, and suddenly he slipped in the question asking if I would like to serve the County upstate in the Council. I asked him what it entailed and how much time it would involve. He said it'd take only one or two nights a month; and I fell for it. And look where I've wound up!—along with a lot of your colleagues giving a lot of time to not only CSMS, but its progeny, CMIC, CMMI, and now the recently launched M.D. Health Plan.

Before I go any further, I must say that I could not have come this far without the advice and consent of my wife, Stacy, our sons, Peter, who is here, and Paul, who is doing as many of your children in college are doing at this time, taking final exams, as well my covering colleagues, Drs. Doering, Herzig, and Glasser. They have all been just great in putting up with my frequently sudden, and once prolonged, absences.

As to why I am here, I can only say that I was in the right place, at the right time, with the right product—a product that included a belief in medicine as a profession worth standing up and fighting for. Some have asked me if it is worth the time and energy. Although it may sound corny, I must say that I believe it is. We can no longer sit back in our offices and wait for the world to come to us. We must go out and become involved. Look what's happened while we've sat in our offices. A little here, a little there, and suddenly we're being asked questions in the hallways as to what the State is doing about this, and what the AMA is doing about that, as we find our turf is being nibbled at, our professional freedom is being restricted. . .even our right to practice has been abrogated. We must go out and do what all the other special interests have done: we've got to write, we've got to call, we've got to talk, we've got to lobby, we've got to educate and, most importantly, we've got to contribute, not only money, but time, to those who have assumed control of the future of our profession.

Nothing can be accomplished without contributions. All special interest groups rise or fall with them. We cannot feel that, just because we are physicians, we have a privileged place in society. Just look at the free time and effort that other interest groups contributed in the last elections to ambitious candidates. You are now seeing these groups demanding payment for those contributions and are being paid back in our General Assembly—paid back by votes for their special interests. Since we cannot give such time to candidates favorable to our view, we must contribute in another way, and that is in the form of COMPAC, our political action committee. That's why your Society keeps asking you all to join COMPAC. Your record has been less than enthusiatic, but I feel that as more and more of you become more and more aware of how politics have affected, are affecting, and will affect your practices, you will, and must be, more willing to contribute.

The very mention of your Society's lobbyists in the press indicates the fear they have brought to our detractors. Only a few short years ago, I remember that we did not have much of a budget for lobbyists because many felt we were on a level above those who were using them. In the last two years however, our lobby budget was increased significantly, and you saw the results: tort reform, favorably affecting your liability insurance, and, this year, the gallant effort in the face of overwhelming odds against mandatory assignment, which may have saved physicians and the future of medicine in the State, as well as the rest of the country. However, lobbying takes money, and along with other increased expenditures have resulted in increased dues over the years. It is money well spent.

We all know that as a result of Congressional mandates regarding Medicare reimbursement rule changes, many of our incomes are being squeezed, especially in the face of rising hidden expenses: rents, telephones, utilities, office supplies, and now even postage stamps. These don't

---

JAMES P. ORPHANOS, M.D., incoming President of the Connecticut State Medical Society is in the private practice of Family Medicine, Greenwich, CT.

show up in the regular inflation figures. Many of you have expressed the feeling that the dues for your local, county, state and AMA organizations have not been worth it. However, as I have said, they are. Just stop and think of it: who else have you got to stand up and speak for you? If it were not for organized medicine's efforts as the AMA on the national level and CSMS on the state level and your local county societies, we most likely would have had socialized medicine by now. United, we stand; divided we fall.

Let me now turn to other thoughts – thoughts of the past, thoughts of the present, and thoughts of the future.

In what seems now to have been the remote past, my thoughts turn to the first meeting of the Council that I attended, in 1981. At that meeting, the decision to proceed with the formation of its Connecticut Medical Insurance Company, known as CMIC, was made for the purpose of providing reasonable medical liability insurance to its members. I believe it was the most momentous decision that the Council had made since the formation of Blue Cross/Blue Shield many years ago. That decision saved the physicians of Connecticut almost $7 million in premiums that year as CNA came in and bid to fill the vacuum created when Aetna priced itself out of sight. No one can deny that the dues of the members that year were well worth it.

In three short years, CNA raised its premiums to the point where the Council, in 1984, voted to take CMIC off the shelf and implement it. There were the usual gloom and doomers who said it couldn't be done and that we should not spend the money to try to get it done. Others felt it would never succeed against the commercial carriers, would cost too much, would imperil the Society's financial stability, that doctors should practice medicine, and let the commercial carriers set the rates. In other words, they said "we can't do." On the other hand, there were those who believed in "can do," and it was done, in just ten short weeks, dispite all the disinformation campaigns – campaigns similar to those going on now against our M.D. Health Plan. Many of you pulled back and decided to let the next guy join; many of you decided to wait and see if it would fly. You paid dearly to the carriers you stayed with. CMIC, as many of you policyholders know, now has assets of about $54 million in just two and one-half short years.

In the more recent past, just two years ago, when I agreed to serve as Vice-President of this Society, three major issues surfaced: 1) CMIC, which had just been launched, 2) Tort Reform, and 3) the All-Payors Bill.

CMIC, I've already discussed.

Tort Reform was just a thought at that time, for the Society had never had any success in getting its proposals out of committee in the legislature. However, that year, for the first time a bill was reported out. What an achievement! Our lobbying budget was miniscule, but it helped.

This first success was followed by an even more successful second year. Together with the insurance industry and the Connecticut Business & Industry Association (CBIA), a tort reform measure second only to that of California's was enacted in Connecticut last year. As a result, when we went to London to negotiate reinsurance terms with Lloyd's, CMIC policy holders benefitted greatly, in that Lloyd's granted us more than what we had been led to expect because of the tort reform.

The last major issue at that time was the *All-Payors Bill*, which, as a cost containment measure, set a fixed rate of payment for hospitalizations. Although it did not really affect physicians directly, there were those who perceived, correctly, that if the All-Payors Bill were enacted, it would eventually be put in place for physicians as another means to contain costs. Your Council voted to join the coalition of business, insurance companies, Blue Cross/Blue Shield, and the Hospital Association against that bill. When the bill was passed, after the other members of the coalition had quietly switched sides and left the Society as the only opponent of the bill, the Society and its physicians were castigated in the media by certain legislatures as being against health cost savings and containment.

As I take office now, I am happy to report that your Council has been vindicated for its action against the All-Payors Bill, although the media does not give it credit. It did not cut costs at all. It did not save the tax-payers of Connecticut, or the health insurance policy holders a cent. In fact, the bill reportly has resulted in windfall profits to the hospitals of Connecticut of over $50 million. If physicians had passed such a bill, they would be sued for malpractice.

Thinking of the present, I find that, with many of the supporters of tort reform having been defeated by the Connecticut Trial Lawyers Association, tort reform has been brought out for "de-form." This would bring back "joint and several liability" in cases where plaintiffs are without fault, would repeal structured payments, and would increase funds available to attorneys under the contingency fee arrangement. As tort reform is emasculated under SB105, I fear for the citizens of Connecticut, as well as for its physicians, for re-insurers such as Lloyd's, instead of hearing that a cap had been placed on court awards, will once again be forced to resort to outrageous raises in reinsurance rates in order to compensate for the outrageous awards condoned by the courts. The CBIA's call last year for "fairness and balance in the civil court system" will have been negated.

In the present litiginous climate, our best and brightest young people are beginning to seek other professional careers. If this trend continues, in the final analysis, all patients will suffer. Washington is aware of this trend and is concerned about it.

This year, the most controversial issue is House Bill 5108, AN ACT CONCERNING THE MEDICARE LEVEL OF REIMBURSEMENT AND THE RIGHT TO PRACTICE MEDICINE, commonly known as the Mandatory Assignment Bill. This issue was not anticipated two years ago. Although the bill was essentially defeated just two

Wednesdays ago, the House leadership could not allow its members to bolt on such an important issue. Therefore, a caucus of the Democratic membership was called the next day. Under parliamentary rules, the right to entertain and carry a motion for reconsideration was exercised, and a re-vote was scheduled. The power of the office carried the day for the liberal tax-and-spend Democrats and their masters. The final bill is probably being acted upon at this very moment.

Considering the large liberal majority that the Democrats had, we must consider the vote a tremendous victory, for we did win 1) the deletion of the loss of licensure provision, 2) the deletion of the mandatory provision, both of which were in the original bill, and 3) their acceptance of our medical courtesy card program as the vehicle for carrying out the conditions imposed. Those conditions call for our having over 50,000 seniors enrolled, 85% of all Medicare billings on an assignment basis (which may be subject to interpretation), 80% of all physicians in each specialty and 85% of the physicians in each county participating by 1 July 1988. They must all have a Medicare Provider Number. The income levels will be 150% of the Compace levels of $13000. and $16000.–which works out to $19950. and $24000. You will be supplied with further details in mailings from the Society as soon as the bill's language is finalized.

Nationwide, Connecticut is being watched to see how this bill would be enacted. The fact that our right to practice was not tied to mandatory assignment, the fact that licensure was not tied to mandatory assignment will be looked at with satisfaction by our brothers throughout the country, and with dismay by those elderly who wrongfully feel that we are their antagonists, not their advocates. I am confident that you all will cooperate and make this program work so that no cause will be given for allowing the mandatory provisions to be enacted just prior to the 1988 elections.

Another issue today is that of M.D. Health Plan. This is your Society's sponsored effort to supply the people of Connecticut with one statewide organization to deliver quality health care. The concept was endorsed by the state's largest employers who wanted to deal with one provider statewide. M.D. Health Plan allows you all to have your own fee schedule in contrast to the fixed fee schedules of the other HMOs. It is NOT structured to favor the surgeons, as I heard at one hospital meeting recently. It is not structured to favor any one group, as the disinformationists are alleging. It is the only HMO which will allow you to continue to have direct access to your patients. It is not the gatekeeper concept that all the other HMOs have.

Another issue that has not drawn much attention is that of Triplicate Prescription Forms, i.e., HB7178. We on the New York border are familiar with it. The cost will be substantial. They cost us 25 cents a piece for which no one will reimburse us, and have done nothing to reduce drug abuse in New York. Triplicates may even result in more break-ins to steal such pads as they take on a street value, as the Prohibition prescriptions of the 1920's did. We urge you and your colleagues to write your state senator as quickly as possible in opposition to HB 7178.

Thinking of the future, I see CMIC continuing to grow, but at a slower rate. There will not be the spectacular improvement in results of the past, for not only will there be more claims, awards, and settlements, but there will also be the adverse effects of the Tax Reform Act of 1986 which will affect all insurance companies–property and casualty, auto and medical. Time will tell.

The tort reform changes will have taken effect, and it will have to be seen what the consquences will be, and whether there will be any more tort reform fine tuning.

The Mandatory Assignment Bill, AN ACT CONCERNING THE MEDICARE LEVEL OF REIMBURSEMENT AND THE RIGHT TO PRACTICE MEDICINE, HB 5108, will be reviewed and reviewed and reviewed, all with the probable goal of accomodating those who felt betrayed by their leaders in not making it mandatory. The federal government may yet find that HB5018's intent is to abrogate the federal Medicare law, and they therefore may revise the Medicare language that the Massachusetts courts found as a basis for their decision, i.e., the "option" to accept Medicare assignment may be changed to the "right" to accept Medicare assignment. The Supreme Court may even consider the Massachusetts decisions and find them faulty, with their ultimate reversal. One should not be surprised to see those who demanded our subjugation proceed with their newly found power to demand that the same limits be applied to state entitlement programs such as heating subsidies, food stamps, and prescription payments–leading to an economic crisis forcing the young working people, most of whom do not make anywhere near the $20,000 to $24,000 limits, to work harder to support these programs.

In my time with the Society, as I have indicated, there has been much accomplished. However, we cannot enjoy the luxury of sitting back and saying that nothing more can be done. We must not let cost cutting and cost containment become euphemisms for what really is a form of rationing the health care of our patients–a rationing to save dollars so that they may be used, not for budget reduction, not for budget balancing, but for other spending programs being touted by lobbyists at the federal level. These include spending billions to slaughter dairy cows and encouraging farmers not to plant crops so that the price of food will rise for the frail and elderly and the poor–to say nothing of the efforts to impose import taxes on oil which the frail and elderly and the poor need for heating their homes. The metal and commodity markets are telling us what the effect of those programs will be–inflation!

Unfortunately, the elderly, frail or not, and the poor do not realize how such programs they endorse will, in the long run, deny them the benefits of individualized, quality health care. When concern for hospital profits comes before concern for the individual patient, we must speak out. We must learn to be advocates for our patients on many fronts today. It is ironic that while I was in

Washington last week advocating positive changes in Medicare policies for the elderly, and I must say being supported in advocating same, their advocates in Hartford were advocating changes affecting me and my peers negatively. However, I turn my cheek and say "forgive them, for they know not what they do."

Together, you and your Society must look forward to the future and make every effort to preserve the quality of care and standard of living for our patients, not only for the elderly but for the young who are being burdened with the cost of all these programs. We live and practice in a State small enough so that our voices can be heard locally *and* on the federal level. We must become the outspoken champions for equal access to quality medical care, not cook-book medicine—for *all* the citizens of Connecticut. Today, your commitment to your profession includes a commitment to watchdog public policies that run counter to the welfare of your patients. We have kept silent too long. Educate your patients, educate your colleagues and friends, educate your legislators, and support your state medical society. We need your help.

Thank you.

Call for Scientific Papers

Members of The Connecticut State Medical Society reading papers before other organizations are requested to submit their papers to the JOURNAL for consideration by the Board of Editors for publication. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult INFORMATION FOR AUTHORS. This material may be obtained from the *Journal* office. Adherence to the instructions will prevent delays both in acceptance and in publication.

Please send them to:
Robert U. Massey, M.D., Editor
Connecticut Medicine
160 St. Ronan Street
New Haven, Connecticut 06511
Tel: (203) 865-0587

AYR INSURANCE AGENCY

Sponsored by

The Connecticut State Medical Society

Featuring:

NEW - Non-Smoker Term Life Insurance

WITH NEW LOWER RATES

-ATTENTION-

If you currently have a Phoenix Mutual Term Life Certificate (with the former Irwin Schiff Agency) you should investigate this new offering.

Also Featuring:

Disability Income Insurance
Hospital, Surgical and Major Medical Insurance
Office Overhead Insurance

"Growing Bigger by Serving Better"

Alison Ayr	David Gould
J. Lauren Ayr	William Harrington

105 Sanford Street, Hamden, CT 06514
Telephone 288-4302

Reflections on Medicine

Ethics without Virtue?

ROBERT U. MASSEY, M.D.

> Mr. Farebrother was silent for a moment, and then said earnestly, "My dear fellow, let me ask you one question. Forgive me if I take a liberty."
>
> "I don't believe you will ask anything that ought to offend me."
>
> "Then—this is necessary to set my heart quite at rest—you have not—have you?—in order to pay your debts, incurred another debt which may harass you worse hereafter?"
>
> "No," said Lydgate, colouring slightly. "There is no reason why I should not tell you—since the fact is so—that the person to whom I am indebted is Bulstrode. He has made me a very handsome advance—a thousand pounds—and he can afford to wait for repayment."

Even without recalling the events which preceded this dialogue from George Eliot's *Middlemarch*, we can imagine any number of situations to which this conversation might be a sequel. A patient whom Dr. Lydgate had earlier been called to see, Raffles, had died in the home of a wealthy banker during an episode of *delirium tremens*. Bullstrode, the banker, had been blackmailed by Raffles, and had wrestled with his feelings of guilt for having fervently hoped for his death. We know that by failing to prevent his housekeeper from giving brandy to Raffles to bring him around from the sedative effect of opium (Lydgate had ordered that no alcohol be given), in fact by giving her the key to the wine-cooler, he may have assured his death. All of this followed Bulstrode's advance to Lydgate of the thousand pounds which he had desperately needed to pay his debts and save his marriage.

The theme is a familiar one, and medical students rediscover *Middlemarch* every few years; sooner or later they raise the question, not of Lydgate's guilt or innocence, for that is not the issue and he is blameless before the law, but rather of his character. Words like "character" and "virtue" have become difficult for us to use; they are judgmental, not clinically precise, and attempts to define them generally cause the discussion to lose its way. Thinking of them as a way of describing who someone is, rather than what he does, may help.

Aristotle suggests that virtue and justice may be equated: "Justice therefore, in this sense of the word, is not part of virtue, but the whole of virtue; its opposite, injustice, is not a part of vice, but the whole of vice."[1]

But then he writes of the "justice which is only a part of virtue." An unjust person may do a just act, or conversely a virtuous person may deal unjustly. According to Aristotle he remains virtuous only if he later regrets his unjust act. The distinction here is between a person who is just or unjust on the one hand, and an action which may be good or bad on the other.

"I don't care what he does in private, so long as he does his job." Can an administrator deal justly in his work, unjustly at home? Can a physician be a good and compassionate doctor and at the same time a bad mother, father, husband, or wife? Can an excellent cabinet maker be a cheat in business? Does a craftsman do shoddy work? Sometimes perhaps, but time after time, day after day?

Once or twice every decade or so medical schools undertake a self-assessment and are then reviewed for reaccreditation. The basic science and clinical programs properly take most of the attention of the site visitors, but there is a check list of other subjects, including medical ethics and human values.

Almost every medical school offers a course in medical ethics, or an elective, or "we work ethics into our case discussions." The hospital has an ethics committee, not to make decisions, "but to help people reason ethically." Everyone tries to figure out how to devise an agreeable system of ethics without exposing nasty underlying conflicts of values.

In *Middlemarch* George Eliot took on a more serious task; Robert Coles describes it:

> A doctor's character is proved wanting, and the result is his professional success by the standards of the time. Such a devastating irony leaves the reader in hopes, no doubt, that a bit of contemplation will take place: a person's work is part of a person's life, and the two combined as lifework must be seen as constantly responsive to the moral decisions that we never stop making, day in and day out. What George Eliot probed was character, a quality of mind and heart sadly ignored in today's all-too-numerous psychological analyses."[2]

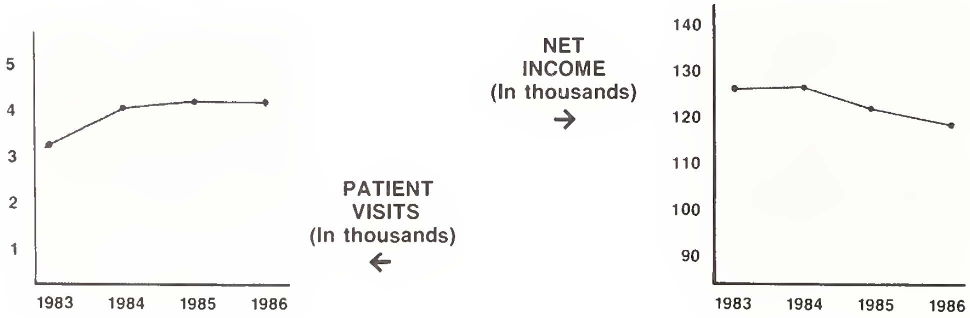
I am not surprised, but am always pleased when students are willing to talk about character as the basis for ethical behavior; they are prepared to concede the dangers and pitfalls of judging the way others lead their lives, but they also recognize the folly of expecting ethics without virtue.

REFERENCES

1. Aristotle, *Nicomachean Ethics*, Book V, Chapter 3.
2. Coles R: Medical ethics and living a life, N Engl J Med 1979, 301:444-446.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

A DISTURBING TREND



THE SOLUTION: IMPROVE PRACTICE EFFICIENCY

- Quick and easy patient registration
- Replace costly superbills with 3¢ visit statement
- Individual, family, liability or workers compensation billing
- Cyclical billing (up to 26 cycles)
- True electronic claim transmission
- Multiple level fee structure (supports private, IPA, Medicare and assignment billing)
- Automated receivables, dunning and complete management reporting
- Full training and documentation
- All system forms and supplies
- Word processing
- Unparalleled service and support from a Connecticut based company
- Complete systems start at less than $10,000
- Fixed rate financing at 6.5%
- Results proven, hundreds of satisfied users representing twenty-six medical specialties

All available with the Professional Office System from ProMed.
Call Bob Seekamp, Director of Marketing
at
1-800-922-3385

IBM
Authorized Value Added Dealer
Advanced Products

ProMed
SYSTEMS INCORPORATED
221 Whitney Avenue
New Haven, CT 06511

A subsidiary of:
Blue Cross Blue Shield of Connecticut

The Baby M Case: Findings and Implications

JOSEPH M. HEALEY, J.D.

In his opinion in the Baby M case, Judge Harvey Sorkow concluded that the surrogate parenting agreement entered into by Mary Beth Whitehead, Richard Whitehead, and William Stern on February 6, 1985 could be and should be legally enforced. In explaining his conclusions, Judge Sorkow listed several objections to surrogate parenting which he subsequently rejected as reasons for refusing to enforce surrogate contracts. His handling of these objections affected his subsequent disposition of the case and provides an important focus for discussion of whether surrogate parenting agreements should be legally enforceable.

Judge Sorkow described six objections to surrogate parenting: (1) the inadequacy of the protection of the child's interest; (2) the possible exploitation of the surrogate parent; (3) the undermining of human dignity by allowing what appears to be the producing of a child for money; (4) the potential conflict with existing law, especially adoption statutes; (5) the erosion of the traditional concept of family; and (6) the potential exploitation of the poor by the rich. Judge Sorkow rejects all of these objections. His responses are puzzling and frequently fail to reflect an understanding of the concerns raised. He relies upon confusing analogies and examples. His arguments are frequently unpersuasive.

In responding to the concern that if surrogate parenting agreements were permissible, then the child would not be appropriately protected, he notes that whether there is compliance with the written contract or not, the court would always be required to determine the best interests of the child and to take steps to protect such interests. Such a statement assumes that existing legal mechanisms are adequate in providing such protection. It further assumes that the child's best interests should not be a basis for preventing conception, birth, and adoption pursuant to such an agreement. It is not at all clear why Judge Sorkow arrives at such a conclusion. He states this conclusion without presenting supportive evidence or adequate explanation. His response to the second criticism asserts that private adoption allows a greater threat of exploitation of the mother than surrogacy. He concludes that since the surrogate mother is not pregnant, enters the relationship freely, and has the opportunity to act in a full informed manner, there is less coercion than in the private adoption setting. Even if this claim were true, it is irrelevant to the concern that financial exploitation is a major issue in the surrogate setting. His response to the third concern fails to address the true nature of the surrogacy agreement. He claims that the money paid to the surrogate is not being paid for the surrender of the child to the father. The payment is for the willingness of the surrogate to be impregnated and carry *his* child to term. The provisions of the surrogacy agreement in the Baby M case required payment of $10,000 to Mary Beth Whitehead upon surrender of custody to William Stern. However, if the child were miscarried prior to the fifth month, no compensation would be paid. In the event the child were miscarried, died, or was stillborn subsequent to the fourth month of pregnancy, the surrogate would receive $1,000 in lieu of full compensation. Clearly such disparity of treatment suggests that it is the production of a child, not the time or effort of the surrogate, for which compensation is provided. One final example of the limitations of Judge Sorkow's decision involves the sixth area of concern. Judge Sorkow rejects out of hand the claim that an economically advantaged group of people might use an economically less advantaged group of women to bear their children. His response doesn't address this issue at all. Instead, Judge Sorkow focuses on the intense desire to propagate the species within the soul of all men and women regardless of economic status. On the whole, this opinion of Judge Sorkow fails to deal effectively with the range of concerns and issues which have been raised.

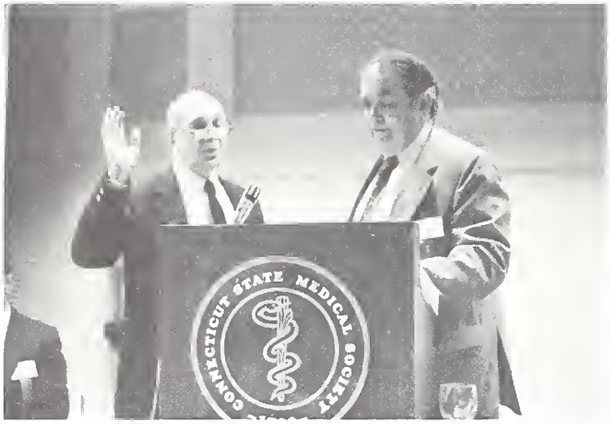
The case of Baby M failed to explore in an effective manner the fundamental questions raised by surrogate parenthood. Does the genetic link to the child, arising out of the donation of sperm and/or of ova, so outweigh the physical and psychological link forged by the gestational mother during pregnancy as to permit the gestational mother to surrender rights with respect to the child before birth? Is the genetic link of such a nature that it would allow the courts to enforce such a waiver of involvement with the child? In his opinion, Judge Sorkow has failed to provide the necessary answers to these questions.

REFERENCES

1. In re Baby M (NJ Super Ct Chanc Div Bergen Cty No FM-25314-86E, 3/31/87).

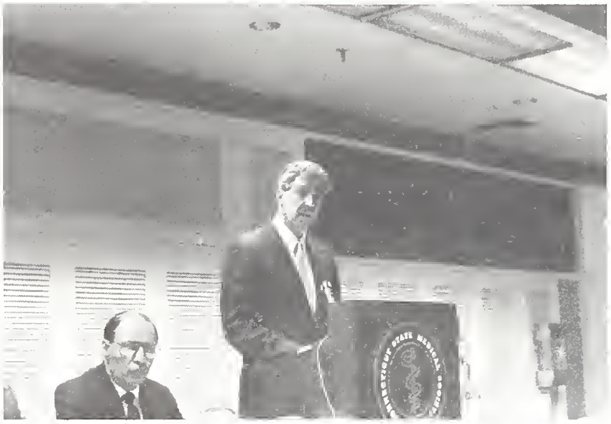
JOSEPH M. HEALEY, J.D., Associate Professor, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

1987 CSMS ANNUAL MEETING HIGHLIGHTS



Outgoing President Joseph C. Czarsty, M.D. administers the oath of office to James P. Orphanos, M.D., 150th President of the Connecticut State Medical Society.

William A. Whalen, Jr., M.D., presents a status report to the House of Delegates on the M.D. Health Plan.



Connecticut State Medical Society, Executive Director, Timothy B. Norbeck, gives a staff update on matters of concern to Connecticut's physicians.

Guy W. Van Syckle, M.D., CSMS Council Chairman, elaborates on the Council report to the House of Delegates.

Dr. and Mrs. Joseph C. Czarsty (center) pose with Carl F. Hinz, Jr., M.D. (left), Associate Dean for Academic Affairs, University of Connecticut School of Medicine and Robert H. Gifford, M.D. (right) Associate Dean of Medical Education and Student Affairs, Yale University School of Medicine, after presentation of AMA-ERF checks to both medical schools.

Isadore H. Friedberg, M.D. (left), received a standing ovation for his years of service to the Society as President, Councilor, AMA Alternate Delegate and Chairman of myriad committees; Ronald Thibou (right) is the Delegate for the CSMS Medical Student Section.

From the Executive Director's Office

SUMMARY OF PROCEEDINGS
CSMS HOUSE OF DELEGATES – ANNUAL MEETING
Meriden – May 6, 1987

Reports and Addresses

The House received reports, addresses and/or remarks from the President, Secretary, Treasurer, the Council, Delegates to AMA, Chairman of the Board of Directors of COMPAC, the Executive Director, Connecticut Medical Insurance Company, President of the Auxiliary to CSMS, Standing Committees, Representatives and Advisors, and the delegates from Massachusetts, Vermont and New York. (The full texts of the reports of the incoming president and retiring president appear elsewhere in this Journal.)

Election of Officers and Others

The House voted to approve the published report of the Nominating Committee (the Council) with minor amendments. Officers elected were:

President: James P. Orphanos, M.D., Greenwich
President-Elect: Norman A. Zlotsky, M.D., Rockville
Vice-President: Roger S. Beck, M.D., Hartford
Secretary: Annemarie S. Welch, M.D., New Britain
Treasurer: Robert R. McDonnell, M.D., New Haven
Speaker of the House of Delegates: Lawrence B. Ahrens, M.D., Newington
Vice-Speaker of the House of Delegates: Mehdi S. Eslami, M.D., Waterbury

One Delegate and One Alternate of the American Medical Association for the term January 1, 1988 to December 31, 1989. (Terms of six other delegates do not expire until December 1988.)

Edward A. Kamens, M.D., Fairfield (D)
Joseph C. Czarsty, M.D., Oakville (A)

Councilor-at-Large: Joseph C. Czarsty, M.D., Oakville

Summary of Actions Taken

All items of business not calling for specific action by the House were accepted directly for filing. Items calling for action to be taken by the House of Delegates were heard by reference committees. Following is a listing of the major actions taken:

Committee Membership

VOTED to increase the membership strength of two committees as follows:

Cancer Coordinating Committee 12-15
Committee on Physician Health 10-12

VOTED to delete the Committee on Professional Liability.

Election of Directors of CMMI

The following individuals were elected to serve as directors of CMMI: Drs. Sultan Ahamed, Daniel W. Doctor, Kevin V. Dowling, Mehdi S. Eslami, Jerome K. Freedman, W. Raymond James, James P. Orphanos, Joseph S. Sadowski, Mr. Timothy B. Norbeck.

Resolution on Publication of Names of Physicians

At the Semi-Annual Meeting of the House of Delegates on November 19, 1986, the following resolution was referred to the Council for study and report:

RESOLVED, that the Connecticut State Medical Society is opposed to the publication of lists of physicians' names by HMO's or other healthcare systems in newspapers, magazines or other advertising media in any fashion which intimates or implies that the listed physicians approve of, or support that particular company or it's marketed plans and/or concepts, and be it further

RESOLVED, that the CSMS shall notify all such companies of its position in this matter.

It was VOTED to support the Council's recommendation to the House of Delegates that the resolution not be approved.

Resolution on Physician Involvement in Walk-In Centers

It was VOTED to refer to the Council for study the following resolution introduced by the New London County Medical Association:

RESOLVED, that the House of Delegates of the Connecticut State Medical Society recommends that physicians be on site at these centers during hours of operation in the interest of the highest possible health care for the citizens of Connecticut who utilize Walk-In Centers.

Isadore H. Friedberg, M.D., Newington

Dr. Friedberg received a standing ovation from the House for his many years of service to the Society. Dr. Friedberg served as a Councilor, Chairman and member of a myriad of committees, President of CSMS, and has recently announced his resignation as Alternate Delegate to AMA. Dr. Friedberg will be leaving the state shortly.

M.D. Health Care

Dr. William Whalen gave an update on M.D. Health Plan and reported that they should break escrow shortly, whereupon they can begin to market the plan. He introduced Mr. Douglas Hayward, the new Chief Executive Officer, who addressed the House and expressed enthusiasm for the success of M.D. Health Care. He stated that perhaps this is the last opportunity to develop a program that will be controlled and guided by physicians. Dr. Guy Van Syckle, Chairman of the Council, reported that the Council had approved the countersigning of an additional line of credit of $300,000 for M.D. Health Plan.

Awards

Dr. Joseph Czarsty, President, presented the following awards:

AMA-Education and Research Foundation (AMEF)

Yale University School of Medicine—$8,407.00
Robert H. Gifford, M.D., Associate Dean for Medical Education and Student Affairs, accepted the check.

University of Connecticut School of Medicine—$6,096.00
Carl Hinz, M.D., Associate Dean of Academic Affairs and Clinical Education, accepted the check.

Connecticut Health Science Fair Awards

First Place Sr. Division	– Miss Jennifer Wisner, Valley Regional High School, Deep River *Project* – "A Study of Minimal Length Networks"
First Place	– Mr. Michael Rosenbush, St. Jude's School, Monroe *Project* – "Connecticut Electricity"

Each student received a suitably inscribed placque and a check for $200.

CSMS Awards

W. Raymond James, M.D. – Alternate Delegate, AMA, 1982-1986

Andrew J. Canzonetti, M.D. – Alternate Delegate, AMA, 1983-1986

Joseph S. Sadowski, M.D. – Councilor-at-Large, 1985-1987

Proposed Amendment to the Bylaws

The following amendment to the Bylaws was placed on the table for action at the next regular meeting of the House of Delegates:

Subject: Life Membership

Purpose: To change membership criteria

Recommendation: Replace Section 4, Par. 1 of Article IV, LIFE MEMBERS, with the following amendment.

Article IV - MEMBERSHIP
Section 4 - LIFE MEMBERS

Par. 1 — Any member of the Society who has retired from practice and has reached his or her 70th birthdate anniversary and has been an active member of the Society, or of a medical association of another state having the same or similar criteria for membership, for fifteen or more years immediately preceding said anniversary, or any active member of the Society who becomes totally or permanently disabled shall be eligible for Life Membership.

Par. 2 — Any fully retired member of the Society who has been an active member of the Society, or of a medical association of another state having the same or similar criteria for membership, for fifteen or more consecutive years immediately preceding application and has not yet reached his or her 70th birthdate anniversary shall be eligible for Life Membership by payment of 20% of regular dues.

Par. 3 — Any member of the Society whose practice has been reduced to twenty hours or less per week as a result of practicing medicine on a part-time basis who has been an active member of the Society, or of a medical association of another state having the same or similar criteria for membership, for fifteen consecutive years immediately preceding application and who has reached his or her 70th birthdate anniversary shall be eligible for a reduction in dues of 50%.

Par. 4 — A physician eligible for Life Membership may apply for such membership to the Executive Director of the Society and shall become a Life Member on approval by the Executive Director of such application. The Executive Director shall subsequently report this action to the Council. Life Members shall not be subject to dues or assessments except as in paragraphs 2 & 3 above and shall be accorded all the rights and privileges of Active Membership in this Society including the rights to vote and hold office. Exemptions from payment of dues or reduction in dues for Life Members shall become effective on January 1 of the year following eligibility for such status.

Present Bylaw

Section 4 - LIFE MEMBER

Any member of the Society who has been an Active Member of this Society or of the American Medical Association or of constituent associations of the American Medical Association for Thirty-five consecutive years or who has reached his or her 65th birthdate anniversary and has been an Active Member of the Society or of the American Medical Association for fifteen or more years immediately preceding said anniversary or any Active

Member of the Society who becomes totally or permanently disabled shall be eligible for Life Membership. A physician eligible for Life Membership may apply for such membership to the Executive Director of the Society and shall become a Life Member on approval by the Executive Director of the such application who shall subsequently report this action to the Council. Life Members shall not be subject to dues or assessments but shall be accorded all the rights and privileges of Active Membership in this Society including the rights to vote and hold office. Exemption from payment of dues for Life Members shall become effective on January 1, of the year following the 35th year of membership or the anniversary year of their 65th birthday whichever is applicable.

ADDRESS OF THE PRESIDENT

Annual Meeting—House of Delegates

Joseph C. Czarsty, M.D.

Fellow delegates, officers, and guests. . . it seems only yesterday that I stood before you as the newly installed President of this great organization, and now much too quickly I am here to present my thoughts on leaving office.

To tell you it has been an exciting and active year would be a gross understatement. On your behalf I have traveled throughout the state and represented you in many different settings. Some were not the most pleasant but all were exciting none-the-less. The opportunity for my wife, Bobbie, and me to meet with the county medical societies was certainly a highlight.

I really began my term of office as a neophyte. My naivete, however, was short-lived. One exposure to activists such as the C.C.A.G. and their U.S.A. group is an instant education into the world of subterfuge and political machinations. The Connecticut State Medical Society (CSMS) presidency is a great training ground for pubic speaking, and I can tell you that I can now talk before anyone or any group and no longer have a dry throat, palpatation, or a fleeting butterfly. As a matter of fact, it was difficult to limit my remarks today to 45 minutes. . . please, no one leave, I am only fooling. . .

All fooling aside however, a good part of my time was devoted to the issue of mandatory medicare assignment. Tim Norbeck and I have appeared on radio talk shows and debated the issue with anyone who cared to debate it. This effort was like a roller coaster ride. We went from high highs to low lows on an almost daily basis. I must confess that it has raised my level of concern over the practicing physicians' perception of the problems facing them and their level of involvement. I know that you in the audience are not the ones to chastise since by being here you have demonstrated your involvement in medicine, but, like in church, you're a captive audience and are going to catch hell for your brethren who traditionally "go fishing" instead.

I was appalled by the lack of response to our call for a physician turnout at the capitol at a very crucial time in the fight to defeat the mandatory medicare assignment bill. I personally want to thank the 50 or so physicians who did brave the rainy weather and the difficult parking, as well as the jibes from the opponents. But my question was and is, "where in the name of God were the rest of you???" With all the mailings, newspaper articles, and editorials, is it possible that the importance of the issue wasn't made clear??? Are physicians so complacent that they still feel they are above involvement and that they can leave these vitally important and sometimes distasteful tasks to the next guy??? If they are, I can tell them from my experience this year that they are going to be chewed up, spit out. . . and whatever you care to add. . . our opponents are organized, they are vocal, and they are dedicated to their causes—one of which happens to be to bring the best damn medical system in the world to its knees!!! Some say it may already be too late. I disagree and this year's legislative victory is an indication that we are not giving in without a fight. Medicine's guns are blazing and our flags are flying. No longer will we be accused of being a bunch of wimps afraid to get our hands dirty or our feelings hurt. We know what we do for our patients *and* society, and let's not let a bunch of rabble rousers besmirch our image. It's time for action. . . When you're asked to write a legislator, do it. . . and send a copy to another legislator you weren't asked to contact. When you're asked to give to COMPAC, do it. . . never mind the petty gripes about who the money is distributed to and all the other reasons you can find for not giving. This is organized medicine's contribution to the political process and it needs more clout. At the same time contribute to the candidate of your choice *personally* so when you write to your legislator he or she will know your name. All of this is so important. It seems so basic and yet many physicians just don't want to accept that fact. I will match our staff and its ability against any of our opponents on any of the issues. Our failing is with the Indians. . . when we get to the battle, we have too few troops to make an impact. We who make the noise and rattle the drums are looked upon as an anomaly. We keep telling these people about our colleagues whom we represent, but they have never seen him or her and are starting to believe they do not really exist.

Let's rededicate ourselves today to preserving a system which is good for us and good for our patients. If we all do our part, we can be successful. We proved that this year.

M.D. Health Plan, voted into existence just one year ago by this House of Delegates, has made great progress. I must commend those physicians involved in its organization. Their commitment has been total. It was a monumental undertaking, and it is truly amazing when you realize how much has been accomplished in such a short time. Once again I must urge my colleagues to remember to support their organization. It is probably our last chance to control our own destiny.

One of my goals this year was to work toward unified membership. I'm sorry to say that my other activities on your behalf left no time for this very important project. It seems to me that not belonging to both the State and the County Society is like putting your shoes on without your socks. This year we all worked so very closely together, and we will have to continue this in the future. Organized medicine can no longer exist as separate little fiefdoms. If we don't pull together, we will be pulled apart. I do not see any legal impediment to unified membership. The State Society bylaws require county membership as a condition for acceptance in its society, and one county already has unified membership written into its bylaws. Fellow members, we all gain from the actions of organized medicine, and we should all share in the cost.

Giving credit where it is certainly deserved, I want to thank the Council for its support and guidance. Believe me when I say I could not have survived this year without the wise counsel and understanding of my wife, Bobbie, and the above and beyond coverage of my son and partner, Dr. Craig Czarsty, who is home watching the store right now. To Tim Norbeck my special thanks for always being there day and night. How lucky this organization is to have such a dedicated, knowledgeable, and able executive. His presentations on our behalf were most professional and the impression he left was always positive.

I want to thank Josephine Lindquist who keeps all of us on the right track and knows this organization inside and out. My appreciation to Ray Sullivan who handles his job so efficiently and is responsible for the marked increase in COMPAC membership this year. To Cam Staples, who joined us during tumultuous times and has made a significant contribution to our cause, my gratitude. I must not forget to thank Shelley Marcus, who made a significant contribution to our legislative efforts before she went on to bigger and better things. My special thanks also to all the support staff, Margaret Connelly, Marc Sullivan, Dorothy Stratton, Patricia King, Valerie Redman, Vivian Feriola, Denyse Malboeuf, and Deborah Titus. These are the people who see to it that things get done.

So much to do and so little time.

HCFA/1500 Medicare Insurance Claim Form

Enter my order for the following forms:

PLEASE NOTE:
ENCLOSE A COPY OF THE MEDICARE INSURANCE FORMS YOU ARE USING.

PLEASE ANSWER THE FOLLOWING QUESTIONS BEFORE RETURNING THIS FORM

I WOULD LIKE MY FORMS IMPRINTED ______ YES ______ NO

I AM ORDERING A ______ 6 MO. ______ 12 MO. ______ 24 MO. SUPPLY.

ARE YOU COMPUTERIZED? ☐YES ☐NO

PLEASE FILL IN THE ORDER FORM BELOW AND RETURN WITH YOUR CHECK PAYABLE TO COMPLETE PAPER SYSTEMS. FREIGHT WILL BE BILLED SEPARATELY. F.O.B. NEWINGTON, CT.

DESCRIPTION (QUANTITY/CARTON)	PRICE/CARTON (WITH IMPRINT)	PRICE/CARTON (NO IMPRINT)	QUANTITY (# CARTONS)	TOTAL COST
1-PART CONTINUOUS (2500)	$150.00 ______	$ 70.00 ______	______	$ ______
2-PART CONTINUOUS (1100)	125.00 ______	70.00 ______	______	$ ______
2-PART SNAP—SET (2500)	225.00 ______	145.00 ______	______	$ ______
20 PADS OF 50 (1000)	115.00 ______	65.00 ______	______	$ ______

WHAT KIND OF PRACTICE ARE YOU? ______________

TOTAL CHECK ENCLOSED

SHIP TO: NAME ______________

ADDRESS ______________

CITY/TOWN ______________ STATE ______________ ZIP ______________

SIGNATURE

TELEPHONE NUMBER

complete paper systems
2608 Berlin Turnpike ■ P.O. BOX 11426
Newington, CT 06111
203-667-3089

EXPIRES 9-30-87

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

(If no name is listed, contact the Physician Placement Service for more details.)

AMBULATORY CARE

Full or part time position available for physician in the Colchester Immediate Care Medical Center opening mid-April. Salary and benefits negotiable. Please send C.V. to: Dr. Robert Moskowitz, Stonemill Road, Mansfield, CT 06250 or phone (203) 429-6109.

Full time position available for an ambulatory care physician to work in an established walk-in center in the greater Bridgeport area. Please send curriculum vitae to Immediate Health Care, 15 Armstrong Rd., Shelton, CT 06484. Attn: Darlene.

EMERGENCY MEDICINE

Full time position available in a modern progressive 102-bed general hospital in Northeastern Connecticut. Board eligible/certified or prepared in Emergency Medicine with General Surgery, Family Practice or Internal Medicine background preferred. Attractive compensation and benefits. Send CV and benefits to Satya Agarwal, M.D., FACEP, Director, Emergency and Outpatient Services, Rockville General Hospital, 31 Union St., Rockville, CT 06066. Phone (203) 872-0501.

FAMILY PRACTICE

Established prepaid staff model HMO seeks an experienced BC/BE family practitioner in Urgent Visit Dept. CHCP is affiliated with Yale New Haven Hospital. Position available immediately. Liberal benefit package. Send CV and salary requirement to: CHCP, Urgent Visit, Chief of Medicine, 150 Sargent Dr., New Haven, CT 06511. EOE M/F

BC/BE Family Physician to join group of five family physicians in Meriden-Wallingford-Cheshire area. No obstetrics. Salary plus incentive; desirable area. Send C.V. to: Family Practice Associates, P.C., 116 Cook Ave., Meriden, CT 06450

INSTITUTIONAL MEDICINE

Health Director, City of Stamford, CT. Candidate must be a physician licensed to the standards of the State of Connecticut and a graduate of a recognized school of Public Health with at least five years' experience in public health work. Requirements include intricate knowledge of preventive medicine, environmental management, school health, social programs and legislative action. Hired individual may not engage in the private practice of medicine, but may operate as chief medical advisor to the school system. Salary range is $55,000 to $70,000 per year with a five year contract. Benefits are available. Please send resume with a cover letter outlining your qualifications for this position by April 30, 1987 to: Sherry Williamson, P.O. Box 10152, Stamford, CT 06904-2152. EOE/AA.

INTERNAL MEDICINE

Opportunity to take over active practice in suburban Hartford—served by all Hartford hospitals—planning retirement in one to three years. Please write CSMS, c/o IM/HZ.

Cardiology, BC/BE Cardiologist needed for community hospital cardiology private practice. Interest or experience in behavioral cardiology desirable. Please forward CV to Stephen T. Sinatra, M.D., F.A.C.C., P.C., 483 West Middle Turnpike, Manchester, CT 06040.

For Sale. Internal Medicine practice. Established 21 years. Southern Connecticut. Excellent location near Yale-New Haven and New York City. Call (203) 795-9419, evenings. Available July 1987.

Internist, can have specialty interest, to join established practice as partner in Avon, CT in superb office setting. Near medical school and hospitals. BC/BE. Please send CV to CSMS, c/o IM/HA.

INTERNAL MEDICINE/REHABILITATION

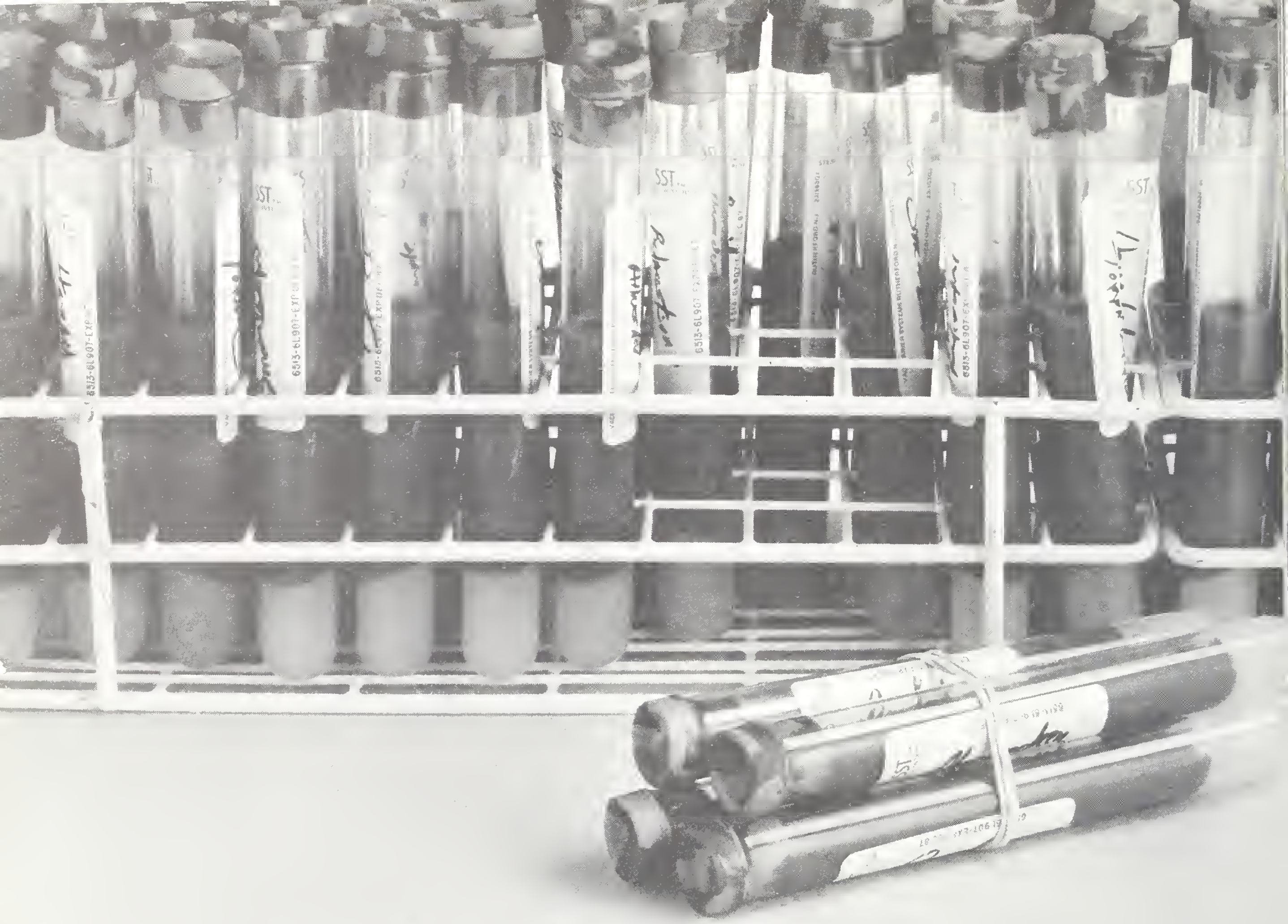
Well-recognized rehabilitation hospital in Connecticut seeking internist with rehabilitation experience or interest. As the leader of a multidisciplinary team, the physician will be primarily responsible for patients with a variety of neurologic and medical diagnoses. Excellent salary and benefits in pleasant atmosphere with prime opportunity for professional satisfaction. Please send C.V. to: Rose Malfa, M.D., Director, Division of Medical Services, Gaylord Hospital, P.O. Box 400, Wallingford, CT 06492.

MISCELLANEOUS

Seeking BC physicians in Hartford, CT area, who are particularly proficient in patient history and physical examinations. Medical Assessment Programs provides comprehensive Independent Medical Examinations for Workers' Compensation, Liability and Bodily Injury patients. Openings for part-time and full-time physicians. Monday through Friday, 9 to 5. No weekends or evenings. Excellent benefits and salary. For additional information, call Dr. Smith (617) 449-8201.

OBSTETRICS/GYNECOLOGY

Young Solo OB/GYN, Board Certified seeks BE/BC associate for busy private practice in a beautiful resort community in southern Connecticut. Excellent opportunities for higher education, water recreation, shopping. Easy access to NYC, Boston, Hartford, Cape Cod and skiing. Very stable economy with low unemployment. Please forward CV to: Stanley P. Solinsky, M.D., 449 Montauk Ave., New London, CT 06320.



HIV Positive Confirmed. Then What?

AIDS is tough to treat. Ruthless to an increasing patient population, it challenges physicians and nurses as never before in their commitment to quality care.

The Spellman Center for HIV-Related Disease at St. Clare's Hospital and Health Center in New York City, accepts the challenge posed by AIDS and HIV infection. The first facility in the tri-state region to devote its resources solely to the care of AIDS patients, the Spellman Center designates its highest priority as compassionate patient care. A dedicated staff provides comprehensive medical, nursing, psychosocial, and dental treatment in an atmosphere that is warm and understanding.

The Spellman Center—a 60-bed Acute Care unit, Emergency Service, Outpatient, Ambulatory Infusion and Dental Clinics—accepts referrals of patients with CDC-confirmed AIDS or ARC (AIDS-related complex), and those who are seropositive for HIV. Spellman also reaches out to offer testing, counseling and treatment to persons at risk for AIDS.

If you need consultation concerning your patients, or more information, please call Dr Debra Spicehandler, the Medical Director, at (212) 307-1161.

The Spellman Center also maintains an information hotline for patients with questions about AIDS: 1-800-433-AIDS.

The Spellman Center
for HIV-Related Disease
A Designated AIDS Treatment Facility
St. Clare's Hospital and Health Center

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

ORTHOPEDIC SURGERY

Expanding North Central Connecticut health care system (Acute Care Community Hospital, Free-standing Surgery Center, Nursing Home, Medical Education and Wellness Center) seeks BC/BE Orthopedic Surgeons to establish community-based practice in a service area of 100,000. Exceptional first year income guaranteed and office support systems for establishing practices provided. Strong partnership possibilities as well as academic affiliation with University teaching hospitals. Send replies to CSMS, c/o ORTH/AAL.

Shared office space available for an Orthopedist. Prime, easily reached location with free parking, in New Haven. X-Ray, Cybex II and other diagnostic equipment included for use. Please contact, Giovanni Raccugli, M.D., 437 Orange St., New Haven, CT 06511. (203) 624-5706.

OTOLARYNGOLOGY

Must have facial plastic surgery training to join busy practice in northwestern Connecticut. Excellent opportunity in well established progressive practice. Board certification preferred. Send CV with reply to CSMS, c/o OTO/TM.

Associate needed for general E.N.T. practice in Northwestern Connecticut. Prefer board certified and Connecticut licensed. Send resume to CSMS OTO/PA.

PEDIATRICS

An opening for a part time associate, for up to 20 hours a week, is available now in a two person private pediatric practice. Office is located five miles from the Yale-New Haven Medical Center, our chief hospital affiliation. Earnings will be 50% of gross income. If interested call (203) 248-4846 any evening after 7 p.m.

Pediatrician. BE/BC. University trained, needed to join solo Pediatrician in semi-rural Western Connecticut. Please call (203) 355-4113.

PRIMARY CARE

Full time physicians for walk-in medical services. West Haven and Milford. Write, CSMS, c/o PC/BY.

Internist. The Northeast Permanente Medical Group in the greater Hartford area of Connecticut is seeking BC/BE primary care internists for 1987. The Medical Group is the exclusive provider of health care services for the Kaiser Foundation Health Plan of CT. This attractive opportunity offers membership in a multispecialty professional corporation, with enrollment of approximately 30,000 members with competitive salary and benefit programs. University-hospital training or its equivalent is desirable. Address inquiries and resumes to: Alan Greenglass, M.D., Chief, Department of Internal Medicine, c/o Physician Placement Dept., Northeast Permanente Medical Group, P.C., 60 Washington St., Suite 401, Hartford, CT 06106.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

GENERAL PRACTICE

April '87. Age 52. Licensed in Connecticut. AB elig. MD, University of Lausanne, Switzerland; Int., Bronx-Lebanon Hospital Center, Bronx, NY. Prefers solo type practice. Write, CSMS, c/o CT/GP.

GENERAL SURGERY

April '87. Age 40. Nat'l bds. AB elig. MD, New York University; Int. and Res., St. Vincent's Hospital, NYC; Fellowship, Mt. Sinai Hospital, NYC. Prefers group, associate or institutional type practice in a medium-sized community. Write, Kathleen M. Kelly, M.D., 300 First Ave., New York, NY 10009.

INTERNAL MEDICINE

Aug. '87. Age 28. Nat'l bds. AB elig. MD, Cornell University Medical College; Int. and Res., George Washington University Hospital. Prefers group, associate and institutional type practice. Write to: Joanne Foodim, M.D., 1819 Kalorama Rd., N.W., Washington, DC 20009.

OBSTETRICS & GYNECOLOGY

Immediately available. Age 58. Licensed in Connecticut. AB elig. MD, University of La Plata, Argentina; Int. and Res., St. John's Episcopal, Brooklyn, NY. Prefers Fairfield County; part time only. Fluent in Spanish, Italian and English. Write, Dora Perino, M.D., 223 Misty Wood Lane, Fairfield, CT 06430.

OTOLARYNGOLOGY

April '87. Licensed in Connecticut. Presently in practice. AB elig. MD, Queens College, St. Andrews University, Scotland. Int., Maryfield Hospital, Dundee, Scotland; Res. Kingston General/Ottawa General, Canada; Fellowship, St. Luke's—Columbia Presbyterian. Type of practice depends on opportunity. Write, CSMS, c/o PD/OTO.

Oct. '87. Age 30. Nat'l bds. AB elig. MD, State University of NY-Downstate; Int. and Res., Albert Einstein/Montefiore Medical Center. Prefers solo, group, associate or institutional type practice preferably in the Fairfield/Stamford area. Write to: CSMS, c/o RL/OTO.

PEDIATRICS

July '87. Licensed in Connecticut. Age 33. FLEX. AB elig. MD, Far Eastern University, Manila, Philippines; Int., Iloilo Provincial Hospital, Philippines; Res., The Brooklyn Hospital, Brooklyn, NY. Any type practice acceptable in a medium-sized community. Write, CSMS, c/o AHC/PED.

PEDIATRICS

June '87. Age 40. Licensed in Connecticut. Presently in practice. Nat'l bds. AB cert. MD, Lady Harding Medical School, Delhi, India; Int., Danbury Hospital, Danbury, CT; Res., Hartford Hospital and University of Connecticut. Prefers group or institutional type practice in a large-sized community. Write CSMS c/o NP/PED.

PAID CLASSIFIED ADVERTISING

BETHANY, CT NEEDS DOCTORS! Open a new Emergency Care Center Medical Office as soon as possible. Only 12 miles to Yale-New Haven; St. Raphael's; 10 miles to Waterbury Hospital. A new building is going up now in an established area. Lease with option to purchase. Contact: Gary Merritt, KATZ REALTY, INC., 1-800-843-3097.

Professional office condominium directly across from Danbury Hospital. 1130 sq. ft. at present unfinished. Building has ample parking, elevators, carpeting; security lighting. Available for sale or rental. $175,000 without interior finished. $185,000 completed according to standard specifications. Phone 203-744-5600.

"SELLING PRACTICES IS OUR BUSINESS"

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping hundreds of doctors like yourself buy and sell their practices. We guide you through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902

NEW YORK FERTILITY RESEARCH FOUNDATION, INC.

For the Investigation of Problems of Human Infertility

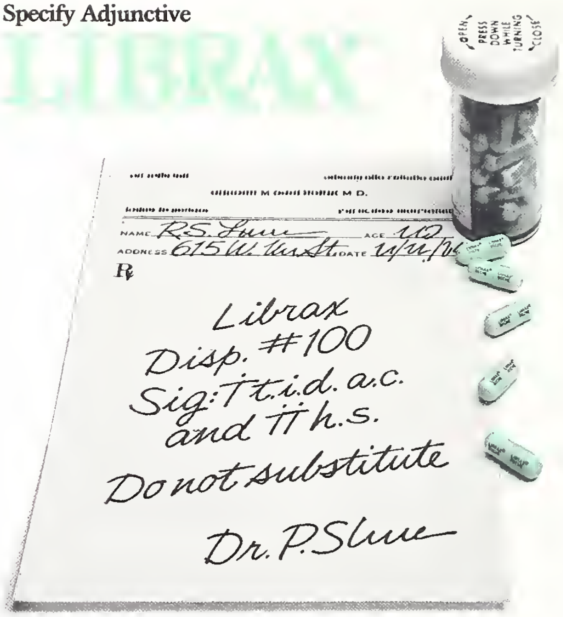
The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

Specify Adjunctive

LIBRAX



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium bromide

Please consult complete prescribing information, a summary of which follows:

* **Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows:
"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.
Final classification of the less-than-effective indications requires further investigation.

Contraindications: Glaucoma; prostatic hypertrophy, benign bladder neck obstruction; hypersensitivity to chlordiazepoxide HCl and/or clidinium Br.
Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

> *Usage in Pregnancy:* **Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.**

As with all anticholinergics, inhibition of lactation may occur.
Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship not established.
Adverse Reactions: No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated; avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered: isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction; changes in EEG patterns may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

P.I. 0186

ROCHE Roche Products Inc.
Manati, Puerto Rico 00701

5470

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 JULY 1987 NUMBER 7

scientific:

Kenneth V. Schwartz, Catherine A. Guercio and Adrienne Katz 423 **Haemophilus Influenza Pericarditis**

Richard V. Morgera 425 **Antibiotic Prophylaxis Prior to Esophageal Sclerotherapy**

A.E. LaMontagne, Jr., J.R. Breiter, M.D., W.G. Heimann and D.S. Patel 426 **Gastric Carcinoma with Bladder Metastases Presenting with Urinary Frequency**

Ovleto Ciccarelli, Michael Belkin and Thomas C. Banever 428 **Obstruction of the Small Intestine Due to an Infected Urachal Cyst**

Epitomes of Progress 431 **Important Advances in Clinical Medicine—Orthopedics**

special articles:

Arthur J. Viseltear 437 **Oral History and Contemporary Medical Education**

Uwe E. Reinhart 441 **Health Insurance for the Nation's Poor**

AMA Council on Scientific Affairs 447 **Introduction to the Management of Immunosuppression**

Drug Information Update:

Lisa Jablon 453 **Azidothymidine (AZT)**

Centers for Disease Control 455 **Epidemiologic Notes and Reports**

Consensus Development Summaries:

National Institutes of Health 459 **Newborn Screening for Sickle Cell Disease and Other Hemoglobinophathies**

Stuart L. Nightingale, M.D. 465 **Foodborne Disease: An Increasing Problem**

The Medical Letter 467 **Advice for Travelers**

James E. Bryan 471 **View from the Hill**

editorials:

David P. Johnson 475 **Antibiotic Prophylaxis for Endocarditis**

Hans H. Neumann 476 **Free Syringes for Addicts**

departments:

The President's Page

James P. Orphanos 477 **Tort Deform**

Reflections on Medicine

Robert U. Massey 479 **Revisiting Dr. Schweitzer**

Law, Medicine and Public Policy

Joseph M. Healey 481 **Baby M and Public Policy**

Letters to the Editor

Timothy M. Magee 485 **Cost Containment: A Challenge to Physicians**

general:

473 **Obituary—Hans H. Neumann 1911-1987**

483 **Book Reviews**

488 **Special Notices**

487 **In Memoriam**

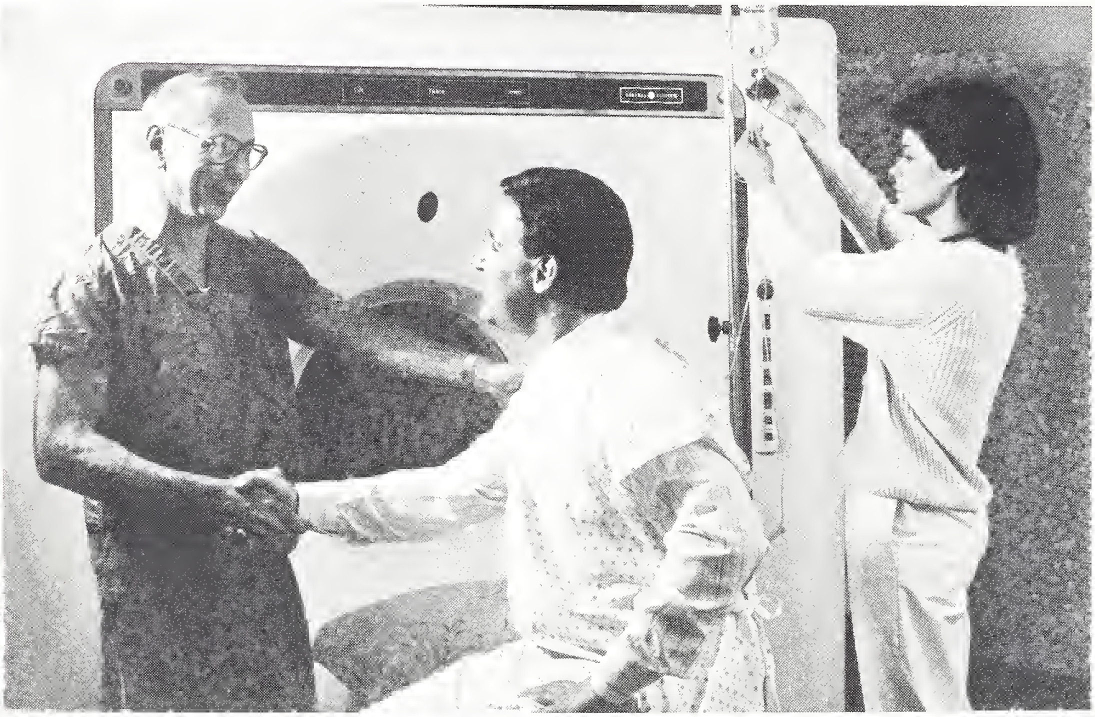
491 **Physician Placement Service**

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE
AUG 7 1987
REC'D.
NOT TO CIRC.

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Physician direction and cooperation —
That's the CMIC Advantage



An effective physician-patient relationship, built on cooperation, understanding and mutual respect, is a key element of any successful medical practice.

At CMIC, cooperation is achieved by involving our physician members in the decision-making of our Company. Connecticut physicians have responded to this by making CMIC the largest insurer of physicians in the state. Though our competitive prices and high level of service are two benefits enjoyed by more than 2,100 insureds, our close and effective working relationship with Connecticut physicians is our greatest asset.

CMIC

The Advantage is yours.

1-800-228-0287

Established in 1984 by the Connecticut State Medical Society

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 JULY 1987 NUMBER 7

scientific:

Kenneth V. Schwartz, Catherine A. Guercio and Adrienne Katz 423 *Haemophilus Influenza* **Pericarditis**
Richard V. Morgera 425 **Antibiotic Prophylaxis Prior to Esophageal Sclerotherapy**
A.E. LaMontagne, Jr., J.R. Breiter, M.D., W.G. Heimann and D.S. Patel 426 **Gastric Carcinoma with Bladder Metastases Presenting with Urinary Frequency**
Ovleto Ciccarelli, Michael Belkin and Thomas C. Banever 428 **Obstruction of the Small Intestine Due to an Infected Urachal Cyst**
Epitomes of Progress 431 **Important Advances in Clinical Medicine—Orthopedics**

special articles:

Arthur J. Viseltear 437 **Oral History and Contemporary Medical Education**
Uwe E. Reinhart 441 **Health Insurance for the Nation's Poor**
AMA Council on Scientific Affairs 447 **Introduction to the Management of Immunosuppression**
Drug Information Update:
Lisa Jablon 453 **Azidothymidine (AZT)**
Centers for Disease Control 455 **Epidemiologic Notes and Reports**
Consensus Development Summaries:
National Institutes of Health 459 **Newborn Screening for Sickle Cell Disease and Other Hemoglobinophathies**
Stuart L. Nightingale, M.D. 465 **Foodborne Disease: An Increasing Problem**
The Medical Letter 467 **Advice for Travelers**
James E. Bryan 471 **View from the Hill**

editorials:

David P. Johnson 475 **Antibiotic Prophylaxis for Endocarditis**
Hans H. Neumann 476 **Free Syringes for Addicts**

departments:

The President's Page
James P. Orphanos 477 **Tort Deform**
Reflections on Medicine
Robert U. Massey 479 **Revisiting Dr. Schweitzer**
Law, Medicine and Public Policy
Joseph M. Healey 481 **Baby M and Public Policy**
Letters to the Editor
Timothy M. Magee 485 **Cost Containment: A Challenge to Physicians**

general:

473 **Obituary—Hans H. Neumann 1911-1987**
483 **Book Reviews**
488 **Special Notices**
487 **In Memoriam**
491 **Physician Placement Service**

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE
AUG 7 1987
REC'D. NOT TO CIRC.

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 AUGUST 1987 NUMBER 8

STACKS

scientific:

Ernest I. Kohorn 495 The Present State of Endometrial Cancer
Rondi K. Walker, C. Elton Cahow and Clarence T. Sasaki 499 Gastric Pull-Up Replacement of the Pharynx and Esophagus in Cancer of the Pharynx and Larynx
Gerald G. Kent, Ovleto Ciccarelli and Peter J. Deckers 503 Primary Malignant Liver Tumors
Frederick P. Conforti, Douglas R. Smego and Kirk K. Kazarian 507 Halloween Appendicitis: Pin Perforation of the Appendix
Epitomes of Progress 509 Important Advances in Clinical Medicine—General Surgery

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE
SEP 10 1987
REC'D. NOT TO CIRC.

special articles:

Government Relations 515 1987 Legislation
Andrew D. Weinberg 523 Geriatric Update: Reimbursement Controversies and Trends in Health Care Delivery to the Elderly
Douglas A. Hayward 531 M.D. Health Plan: The Different HMO
AMA Advisory Panel on Women Physicians 533 The New Woman Physician: Her Growing Numbers Are Not Yet Represented in Organized Medicine
James E. Bryan 535 View from the Hill
The Medical Letter 537 Cancer Chemotherapy

editorials:

Edward E. Morse 549 Autologous Blood: A Better Product
Stanley B. Weld 550 Our Aging Patients

departments:

The President's Page
James P. Orphanos 551 Random Thoughts
Reflections on Medicine
Robert U. Massey 553 Compelling Reality
Timothy B. Norbeck 555 From the Executive Director's Office
557 New Members
559 Physician Placement Service

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 SEPTEMBER 1987 NUMBER 9

STACKS

scientific:

William Sardella, Richard Grotz and Philip Allmendinger 563 Sequential Replacement of the Thoracic A[illegible]

James Spellman, J. Forbes Rogers and Kirk K. Kazarian 565 Typhlitis in Acute Leukemia

Peter Clark 569 Malignant Chondroid Syringoma

Epitomes of Progress 573 Important Advances in Clinical Medicine Emergency Medicine

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

OCT 7 1987

REC'D. NOT TO CIRC.

special articles:

Danbury Hospital 586 Abstracts: Second Annual Research Day

John W. Rowe and Robert L. Kahn 597 Human Aging: Usual and Successful

Consensus Development Summaries:

National Institutes of Health 607 The Management of Clinically Localized Prostate Cancer

Drug Information Update:

William R. Outman 611 Aztreonam

James E. Bryan 614 View from the Hill

Michael Miranda 616 Six Poems

editorial:

Richard W. Besdine 619 A Prescription for Successful Aging

departments:

The President's Page

James P. Orphanos 621 Medicare Assignment

Reflections on Medicine

Robert U. Massey 623 Aiming above the Mean

Law, Medicine and Public Policy

Joseph M. Healey 625 Facing AIDS: Health Practitioners and Public Policy

Timothy B. Norbeck 627 From the Executive Director's Office

631 Physician Placement Service

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 OCTOBER 1987 NUMBER 10

scientific:

Rif S. El-Mallakh **634** Utility of Emergent Computed Tomograms of Head in Diagnosis and Patient Management

John B. Holt, Charles L. Castiglione and Phillip E. Trowbridge **638** Immediate and Long-Term Results of Vertical Banded Gastroplasty for Morbid Obesity

Robert A. Kozol and Patricia J. Numann **643** Surgery for Thyroid Cancer: Recommendations Versus Reality

Epitomes of Progress **645** Important Advances in Clinical Medicine—Psychiatry

special articles:

Ruth Whittemore **655** A 40-Year Prospective of Pediatric Cardiology: From Power to Pearson

David Mechanic **659** Challenges in Long-Term Care Policy

Centers for Disease Control **665** Epidemiologic Notes and Reports

Drug Information Update:

Barry E. Bleske **669** Esmolol

The Medical Letter **673** Verapamil for Hypertension

AMA Board of Trustees **677** Report of the Special Task Force on Professional Liability and Insurance and the Advisory Panel on Professional Liability

STACKS

UNIVERSITY OF MARYLAND
BALTIMORE

REC'D. NOV 5 1987 NOT TO CIRC.

editorials:

M.B. Ozonoff **681** Imaging Studies: On Request or by Direction?

Joseph F. Boyle **681** AIDS Is First a Medical and Public Health Problem

departments:

The President's Page

James P. Orphanos **685** Directory

Reflections on Medicine

Robert U. Massey **687** Last Things: Planning Ahead

Law, Medicine and Public Policy

Joseph M. Healey **689** Confidentiality and AIDS

Timothy B. Norbeck **691** From the Executive Director's Office

693 Information for Authors

694 In Memoriam

695 Physician Placement Service

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

---

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 NOVEMBER 1987 NUMBER 11

STACKS

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

DEC 4 1987

REC'D. NOT TO CIRC.

scientific:

Philip J. Tuso and Mary Jean Ahern 698 **Chronic Meningococcemia**

Roberto J. Fernandez, Ronald A. Zlotoff and Stephen R. Rubenstein 703 **Incidental Mirizzi Syndrome**

Maria P. Lenaz, T.C. Nguyen and William J. Hewett 705 **Leiomyosarcoma of the Vulva**

Elizabeth T. Drum, John McElligott and L. Peter Fielding 707 **Fifty-five MPH Speed Limit and Traffic Related Mortality: To Change or Not to Change**

Epitomes of Progress 711 **Important Advances in Clinical Medicine—Urology**

special articles:

Gerald I. Blank 717 **A Special Message from the Medicare Carrier**

James S. Roberts, Jack G. Coale and Robert R. Redman 719 **A History of the Joint Commission on Accreditation of Hospitals**

David H. Smith 725 **Telling Stories as a Way of Doing Ethics**

AMA Council on Scientific Affairs 733 **Scientific Issues in Drug Testing**

James E. Bryan 741 **View from the Hill**

AMA—The Citation 743 **Current Medicolegal Issues**

Dorothy R. Sweeney, Patricia M. Salmon and M. Eileen McKiernan 745 **Personnel Concerns in the Medical Office**

editorials:

Stewart J. Petrie 749 **Annual Physical Examination for Women**

Dennis S. O'Leary 750 **The Joint Commission Looks to the Future**

departments:

The President's Page
James P. Orphanos 753 **Unity**

Reflections on Medicine
Robert U. Massey 755 **History, Hot and Cold**

Law, Medicine and Public Policy
Joseph M. Healey 757 **Confidentiality and AIDS II**

Letters to the Editor
Jerome K. Freedman 759 **Philosophic Challenges**

742 **Book Review**

748 **Around the State**

763 **Physician Placement Service**

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St Ronan St., New Haven, CT 06511

Connecticut Medicine

The Journal of the Connecticut State Medical Society

VOLUME 51 DECEMBER 1987 NUMBER 12

scientific:

Glee I. Wahlquist and John Booss 766 **Bacteriuria in Multiple Sclerosis: Documentation by Prospective Cultures**

Micha Abeles and T. Joseph Sheehan 769 **Evaluation of a Rheumatology Teaching Program for Family Medicine Residents**

Epitomes of Progress 774 **Important Advances in Clinical Medicine—Internal Medicine**

STACKS

special articles:

Peter A. Engel 785 **Alzheimer's Disease and Dementia: New Perspectives on an Old Problem**

Gerald I. Blank 793 **A Message from the Medicare Carrier**

Drug Information Update:

Richard Gannon 795 **Paralysis and Sedation**

Lawrence Kahn 799 **A Physician's View of Managed Care**

Centers for Disease Control 803 **Epidemiologic Notes and Reports**

James E. Bryan 809 **View from the Hill**

AMA Council on Scientific Affairs 811 **Preventing Death and Injury from Fires with Automatic Sprinklers and Smoke Detectors**

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

JAN 14 1988

REC'D. NOT TO CIRC.

editorials:

Timothy B. Norbeck 815 **A New Proposal to Limit Services to the Elderly**

David P. Johnson 815 **Multiple Sclerosis: Enigmas of Etiology and Management**

departments:

The President's Page

James P. Orphanos 819 **Semi-Annual Meeting Report**

Reflections on Medicine

Robert U. Massey 821 **L'Allegro**

Timothy B. Norbeck 823 **From the Executive Director's Office**

822 **Obituary—Richard T. Sweet 1921-1987**

827 **CSMS Committee Service Questionnaire**

817 **Book Review**

828 **Physician Placement Service**

833 **Yearly Index**

Owned, Published and Copyrighted, ©1987 by the Connecticut State Medical Society

CONNECTICUT MEDICINE (ISSN 0010-6178), published monthly at 160 St. Ronan St., New Haven, CT 06511
Subscription rate included in membership dues. Non-members: $15 per year. Second-class postage paid at New Haven, CT
POSTMASTER: Send address changes to 160 St. Ronan St., New Haven, CT 06511

Haemophilus Influenza Pericarditis

KENNETH V. SCHWARTZ, M.D., CATHERINE A. GUERCIO M.D.
AND ADRIENNE KATZ, M.D.

ABSTRACT–Thirteen previous cases of purulent pericarditis caused by *Haemophilus influenza* have been reported in adults. While a fairly common pediatric infection, it is rare in adults. We report an additional case, highlighting the need for prompt diagnostic and therapeutic intervention.

Case Report

A 59-year-old woman, who worked as an aide in a children's institution, presented with lethargy and malaise for five days. Three days prior to admission she had developed nausea and vomiting. On the day of admission she complained of pleuritic left-sided chest pain relieved by sitting upright. She had previously been healthy; she did not drink alcohol.

On physical examination she appeared dehydrated, toxic, and lethargic. The temperature was 99° F rectally, respiratory rate 24, blood pressure 72/50 with 8 mm paradox, and pulse 120. The skin was cool with peripheral cyanosis. The pharynx was erythematous; the anterior cervical lymph nodes were enlarged. The jugular venous pressure was greater than 10 cm H^2O. Examination of the chest showed dullness to percussion and diminished breath sounds posteriorly on the left. Cardiac auscultation revealed distant sounds with no murmurs, rubs, or gallops.

Initial laboratory data showed a WBC count of 10,000/cu mm with 43% polys, 30% bands. The BUN was 124 mg/dl, creatinine 4.8 mg/dl, Westergren sedimentation rate 110 mm/hr. The electrocardiogram showed sinus tachycardia, premature ventricular contractions, and diffuse ST segment elevation. Chest roentgenogram showed an enlarged cardiac silhouette, left pleural and/or parenchymal density obliterating the left heart border, and a right pleural effusion. Echocardiogram showed a moderate posterior and small anterior pericardial effusion. No echocardiographic signs of tamponade were present.

A Swan-Ganz catheter was inserted and showed a mean pulmonary capillary wedge-pressure of 16 mm Hg. A pericardiocentesis was performed using the subxiphoid approach; 250 cc of thick purulent material was removed. The systolic blood pressure immediately increased to 110 mm Hg and the mean pulmonary capillary wedge-pressure decreased to 6 mm Hg. A Gram stain of the pericardial fluid revealed abundant polymorphonuclear leukocytes and gram-negative pleomorphic organisms.

The patient was begun on chloramphenicol and mezlocillin therapy and taken promptly to surgery where a partial pericardiectomy was performed and an additional 300 cc of purulent material was removed.

The patient's hemodynamics improved and she was rehydrated with normalization of renal function. Her respiratory status deteriorated with the development of an extensive bilateral pneumonia; prolonged respiratory support was necessary. Final blood, sputum and, pericardial fluid cultures identified *Haemophilus influenza* type B, beta-lactamase negative. She continued to receive ampicillin therapy and recovered fully.

Discussion

Haemophilus influenza pericarditis is a rare, serious infection in adults. It tends to occur suddenly in otherwise healthy, predominantly young people. Associated pneumonitis and empyema are common, suggesting that contiguous tissue spread is the usual etiology of pericardial involvement. A review of previously reported cases (see Table 1) reveals a number of similarities. Of the 13 previously reported cases, all but three were treated with pericardiectomy or prolonged catheter drainage. Only one patient died after this type of therapy [1] and this may have been related to inadequate antibiotic therapy. Two of the reported cases had no bacteriological confirmation of purulent pericarditis [9] and were treated with antibiotics alone. These may not be in the same class as the confirmed cases.

A significant finding in the present case is lack of fever. All other reported cases except for one [6] were febrile on presentation. Our patient eventually developed a fever and had normal immunologic studies subsequently. The marked dehydration and azotemia on presentation may have been responsible for a lack of an initial febrile response.

Prompt echocardiography and invasive methods for diagnosis and drainage, usually including pericardiectomy, are critical for survival in this condition. Antibiotic therapy is directed towards the specific organism, with ampicillin being the drug of choice for beta-lactamase negative organisms.

KENNETH V. SCHWARTZ, M.D., Clinical Associate Professor of Medicine, Yale University School of Medicine; Chief, Section of Cardiology, Griffin Hospital, Derby, CT. CATHERINE A. GUERCIO, M.D., First Year Resident, Downstate Medical Center, State University of New York. ADRIENNE KATZ, M.D., First Year Resident, LaGuardia Hospital, New York, N.Y.

REFERENCES

1. Hensler VL: Influenzabazillin-Perikarditis. Cardiologia 1955, 27:154-165.
2. Crossley K, Bigos T, Joffe CD: *Haemophilus influenza* pericarditis. A report of two cases in adults with a summary of the literature. Am Heart J 1973, 85:246-251.
3. Duke M, Donovan TS: *Haemophilus influenza* pericarditis with cardiac tamponade. Am J Cardiology 1973, 31:778-780.
4. Alsever RM, Stiver HG, Diverman N et al: *Haemophilus influenza* pericarditis and empyema with thyroiditis in an adult. JAMA 1974, 230:1426-1427.
5. Rubin RH, Moellering RC: Clinical, microbiologic and therapeutic aspects of purulent pericarditis. Am J Med 1975, 59:68-78.
6. Jafari N, Ikeda S, Taylor W et al: Adult *Haemophilus influenza* pericarditis. Del Med Jrl 1976, 48:513-515.

7. Sheikh MV, Lee WR, Koh DS: Serial echographic development of apparent hypertrophic cardiomyopathy with biventricular outflow obstruction: documentation in *Haemophilus influenza* pericarditis during hypovolemia. Am Heart J 1981, 102:1069-1071.

8. Sink JD, Spray TL, Rankin JS: *Haemophilus influenza* pericarditis: Clin Cardiology 1982, 5:547-549.

9. Graham BS, Reiss TF, Gregory DW: Pericarditis associated with *Haemophilus influenza* type B pneumonia and bacteremia in two adults. Chest 1983, 84:48-50.

10. Buckingham TA, Wilner G, Sugar SJ: *Haemophilus influenza* pericarditis in adults: Arch Inter Med 1983, 148:1809-1810.

11. Kiefaber RW, Bach RD, McDowell JA: Non-surgical treatment of *Haemophilus influenza* pericarditis in an adult. Am Heart J 1984, 108:168-169.

"Since submission of this manuscript, a similar article has been published documenting two additional cases of *Haemophilus influenza* pericarditis. Both were young men who required emergency pericardiocentesis and prolonged drainage. Both survived. This presentation is similar to our patient and many of the other patients reported.

REFERENCE: Greenberg D, Siefkin A, Velji MA, et al: Pericarditis caused by beta lactamase producing *Haemophilus influenza:* Report of two cases in adults and review of the literature: Texas Heart Institute Journal 1986, 13:297-303."

Table 1

PREVIOUS CASES OF HAEMOPHILUS INFLUENZA PERICARDITIS

Reference	*Age/Sex*	*Presentation*	*Diagnosis*	*Organism*	*Treatment*	*Outcome*
Hansler, 1955[1]	24 M	Left empyema Bilateral pneumonitis	Pericardicentesis	*Haemophilus influenza* (Pericardium)	Pericardiectomy, penicillin, sulfa, tetracycline	Died
Crossley et al[2] 1973	38 M	Fever, empyema, right lower lobe pneumonitis	Right heart catheterization, pericardiocentesis	*Haemophilus influenza* Type B (blood, sputum, pericardial fluid, pleural fluid)	Pericardiectomy, ampicillin, chloramphenicol	Lived
Crossley et al[2] 1973	44 F	Fever, delirium, ST elevation	Right ventricular angiogram, pericardiectomy	*Haemophilus influenza* (not typable).	Ampicillin, kanmycin	Lived
Duke & Donovan[3]	33 M	Fever, hypotension ST elevation	Pericardiocentesis	*Haemophilus influenza* Type B	Pericardiectomy, ampicillin, chloromphenicol	Lived
Alsever 1974[4]	26 M	Fever, pharyngitis	Pericardiocentesis	*Haemophilus influenza* Type B	Pericardiectomy, cephalothin, chloromphenicol, ampicillin	Lived
Rubin and Moellering[5] 1975	26 F	Bacteremia	Uncertain	Uncertain	Chloromphenicol, pericardiectomy	Lived
Jafari et al[6] 1976	23 M	Pharyngitis (afebrile)	Pericardiocentesis	*Haemophilus influenza* Type B	Pericardial window, chloromphenicol	
Sheikh 1981[7]	60 M	Pharyngitis, fever	Pericardial effusion on echocardiogram; fluid sterile.	*Haemophilus influenza* Type B (blood only).	"Appropriate antibiotics"	Died
Sink 1982[8]	27 F	Chest pain, fever	Pericardial effusion by echocardiogram; pericardiocentesis	*Haemophilus influenza* Type B	Partial pericardiectomy, ampicillin	Lived
Graham 1983[9]	18 F	Pharyngitis, chest pain, fever	Rub and bacteremia, No effusion by echocardiogram	*Haemophilus influenza* Type B	Ampicillin	Lived
Graham 1983	33 F	Fever, cough, chest pain, rub on 7th day	Pericardial effusion on echocardiogram; positive blood culture, postive sputum.	*Haemophilus influenza* Type B	Ampicillin	Lived
Buckingham[10] 1983	42 M	Pharyngitis, fever	Echocardiogram, pericardiocentesis	*Haemophilus influenza* Type B	Ampicillin, open pericardial drainage.	Lived
Kiefaber 1984[11]	31 M	Pharyngitis, fever	Echocardiogram, pericardiocentesis	*Haemophilus influenza* Type B	16 guage Catheter drainage, ampicillin	Lived
Present Report	59 M	Chest pain, dehydration	Echocardiogram, right heart catheterization	*Haemophilus influenza* Type B	Pericardiectomy, ampicillin	Lived

Antibiotic Prophylaxis Prior to Esophageal Sclerotherapy

RICHARD V. MORGERA, M.D.

ABSTRACT—Esophageal sclerotherapy has become a safe and effective method for relief of acute variceal hemorrhage. A recent American College of Physicians position paper on the procedure cites a 10-15% significant complication rate associated with sclerotherapy.[1] One complication, bacteremia, is especially worrisome since sclerotherapy is usually performed on patients with chronic liver disease who may also be malnourished or relatively immunocompromised. Routine upper gastrointestinal (GI) endoscopy is associated with a bacteremia rate of about 5%. Several studies suggest a similar or greater incidence with injection sclerotherapy.[2-4] We have recently seen a patient who developed bacterial endocarditis following esophageal sclerotherapy.

Case Report

An 80-year-old patient presented with coffee ground emesis. He had a long history of alcohol abuse followed by multiple medical complications including biopsy-proven Laennec's cirrhosis and recurrent variceal and gastric bleeding. On the day of admission, upper GI endoscopy revealed minimal esophageal variceal bleeding as well as a non-bleeding pre-pyloric ulcer. He was treated conservatively and observed in hospital. No further bleeding episodes were noted. While in the hospital, the patient underwent two injection sclerotherapy procedures in an attempt to obliterate his active esophageal varices. These procedures were uncomplicated; he remained afebrile throughout his hospitalization and underwent no other invasive procedures. One week following discharge, he returned as an outpatient for a final sclerotherapy procedure, again, without complication. All sclerotherapy procedures involved the intravariceal injection of 2 ml of 1.5% sodium tetradecyl sulfate (Sotradecol^R) per varix using an Olympus XQ 10 endoscope. There was a total of three injections during each of the three separate procedures.

Two days after this final procedure the patient noticed the onset of a low-grade fever and weakness, but remained at home. He presented to the emergency room two weeks later complaining of being unable to walk because of extreme weakness and malaise. He had no complaint of cough, sputum production, dysuria, or diarrhea but his admission temperature was 38.2°C. Physical exam revealed an unchanged systolic ejection murmur and, in addition, a diastolic murmur in the aortic region which had not been heard on previous examinations. Abdominal examination revealed hepatomegaly; the remainder of the examination was unremarkable and failed to suggest a source for this patient's fever or other complaints. Abdominal echo examination revealed no ascites and a chest x-ray was normal. His white blood count was 10,600 with 34% bands. Urine Gram stain and cultures failed to reveal organisms. Five of six blood cultures obtained showed growth of *Streptococcus sanguis*. In the presence of a new murmur and multiple positive blood cultures, the diagnosis of bacterial endocarditis was made. A cardiac echo failed to identify valvular vegetations but did show heavy calcification of both the aortic and mitral valves. The patient was given high doses of intravenous penicillin (2 million units q4h); his fever subsided promptly and he regained his strength, allowing discharge after four weeks of therapy.

Comment

We suggest that bacteremia is a significant complication of esophageal sclerotherapy with occurrence in some studies in 50% of patients following the procedure.[3] Patients with cardiac valvular disease, or especially with prosthetic valves, should have antibiotic prophylaxis prior to sclerotherapy. Therefore, all patients prior to endoscopic sclerotherapy should undergo careful cardiac examination and any abnormality should be pursued by echocardiography. If antibiotic prophylaxis is indicated, penicillin plus an aminoglycoside should suffice, followed by close observation for infection.

REFERENCES

1. Health and Public Policy Committee, American College of Physicians: Endoscope sclerotherapy for esophageal varices. Ann Int Med 1984, 100:608-610.
2. Camara DS et al: Transient bacteremia following endoscopic injection sclerotherapy of esophageal varices. Arch Int Med 1983, 143:1350-1352.
3. Cohen LS et al: Bacteremia after endoscopic injection sclerosis. Gastrointestinal Endoscopy 1983, 29:198-200.
4. Brayko CM et al: Bacteremia during esophageal variceal sclerotherapy. Its Cause and Prevention. Gastrointestinal Endoscopy 1985, 31:10-12.

RICHARD V. MORGERA, M.D., Medical Director, Family Health Care Center, Southbury, CT.

Gastric Carcinoma with Bladder Metastases Presenting with Urinary Frequency

A.E. LAMONTAGNE, JR., M.D., J.R. BREITER, M.D., W.G. HEIMANN, M.D.
AND D.S. PATEL, M.D.

ABSTRACT– **Secondary tumors of the urinary bladder are relatively common, comprising approximately 13% of all malignant lesions of that organ. However bladder metastases from a gastric carcinoma are rare. A case is reported of sub-urothelial bladder wall metastases from a previously undiagnosed adenocarcinoma of the stomach, presenting with urinary frequency.**

Case Report

A 55-year-old male presented with a history of several months of urinary frequency, not associated with incontinence, infection, hematuria, or dysuria. Physical examination was unrevealing. The prostate gland was not enlarged or indurated. Urinalysis was completely normal. A cystometrogram was performed and revealed only diminished bladder capacity. The IVP showed an upright deformity of the bladder with an increase in pelvic fat suggestive of lipomatosis. (Figure 1) A pelvic CT scan depicted an increase in bladder wall thickness. It also disclosed a thickening of the rectal wall, an increase in perirectal vascularity, and prominent pelvic fat. (Figure 2)

At cystoscopy, the bladder was diffusely abnormal with cobblestoning of the mucosa and deformity of the trigone making identification of the ureteral orifaces difficult. No fistula or discrete tumor was identified. Multiple random cold-cup biopsies were taken which revealed a mucin-secreting adenocarcinoma in the submucosa with a normal intact urothelium overlying the malignant cells. (Figure 3)

A barium enema showed segmental narrowing of the rectum associated with mucosal irregularity, but sigmoidoscopy and biopsy were negative for neoplasm. A full abdominal computed tomography scan and upper gastrointestinal series displayed ascites, celiac adenopathy, and thickening of the gastric wall about the antrum. Gastroscopy depicted diffusely nodular, friable mucosa from mid-body to antrum. Brushing and biopsies revealed a mucus-secreting signet-ring adenocarcinoma, identical to the previously described material from the bladder wall biopsies. (Figure 4) The patient has been referred for chemotherapy.

Discussion

Tumors from *distant* sites rarely metastasize to the bladder. In a series compiled by Melicow in 1955, these represented only 1.5% of all bladder tumors. The most common sites involved were gastric (44%), breast (36%), and lung (16%).[1] Similar numbers were reported by Ganem and Batal in 1956 with the addition of malignant melanoma as another primary site.[2]

However most of these cases were from autopsy series where the finding of bladder metastases was incidental and there were no symptoms, according to review of hospital records. In a series of 5000 autopsies reported by Klinger in 1951 only 33 cases of bladder metastases were identified. Of these, urinary frequency was present in only two instances, painful urination in three, and hematuria in five.[3]

Classically, the diagnosis has been made by cystoscopy and biopsy. However, Fornage et al in 1984 reported a case of a bladder wall metastasis of a linitis plastica of the stomach diagnosed by pelvic sonography and confirmed by cystoscopy and biopsy.

Summary

Urinary frequency is a non-specific symptom of vesical irritability. The differential diagnosis must include a host of benign and malignant lesions, including a secondary neoplastic process. In the absence of an identifiable cause of urinary frequency, cystoscopy, bladder biopsy, and a prostate biopsy in males should be considered essential parts of the diagnostic evaluation.

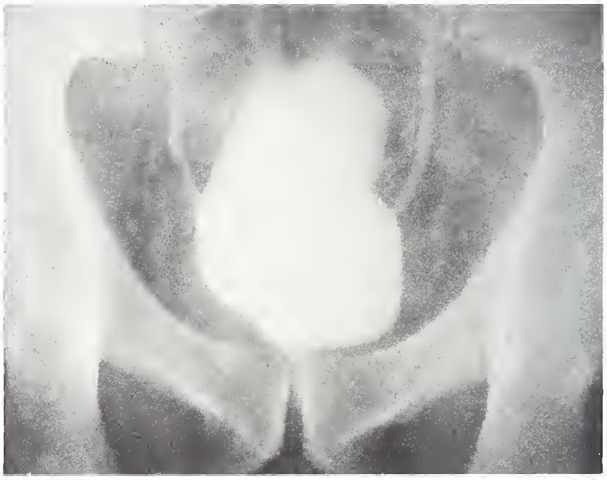


Figure 1
IVP, bladder view showing upright deformity.

A.E. LAMONTAGNE, JR., M.D., Associate, Department of Urology; J.R. BREITER, M.D., Assistant, Department of Gastroenterology; W.G. HEIMANN, M.D., Attending, Department of Medical Imaging; D.S. PATEL, M.D. Assistant, Department of Pathology; all of the Manchester Memorial Hospital, Manchester, CT.

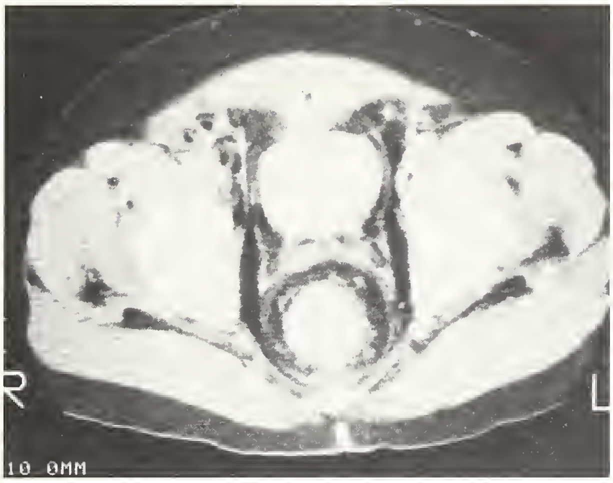


Figure 2

Pelvic CT scan showing thickening of bladder wall and prominent pelvic fat.

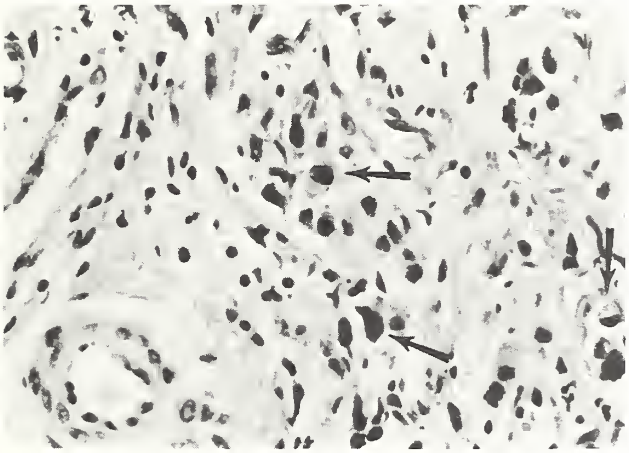


Figure 3

Urinary bladder: Submucosal infiltration by multiple, single, mucin-producing tumor cells (arrows). H&E x 170.

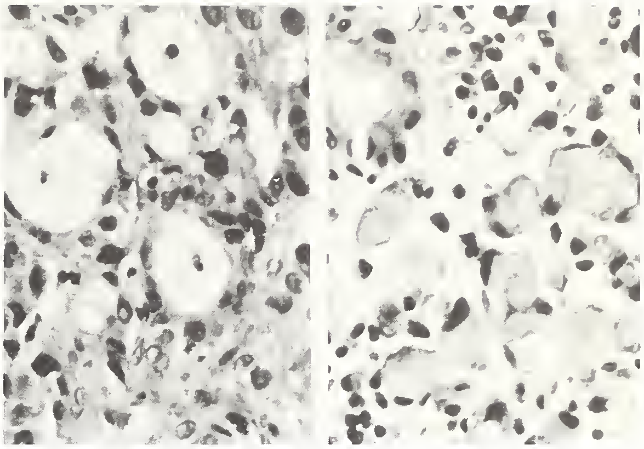


Figure 4

Moderately differentiated gastric adenocarcinoma (left) with signet-ring differentiation (right). H&E x 170.

REFERENCES

1. Melicow MM: Tumors of the Urinary Bladder: A Clinicopathologic Analysis of Over 2500 Specimens and Biopsies. J Urol 1955, 74:498-521.
2. Ganem EJ, Batal JT: Secondary Malignant Tumors of the Urinary Bladder Metastatic From Primary Foci in Distant Organs. J Urol 1956, 75:965-972.
3. Klinger ME: Secondary Tumors of the Genitourinary Tract. J Urol 1951, 65:144-153.
4. Fornage BD, Rifkin MD, Lemaire AD and Touchee DH: Bladder Metastases of Gastric Carcinoma: Diagnosis by Sonography. J Clin Ultrasound 1984, 12:578-580.

Obstruction of the Small Intestine Due to an Infected Urachal Cyst

OVLETO CICCARELLI, M.D., MICHAEL BELKIN, M.D.,
AND THOMAS C. BANEVER, M.D.

ABSTRACT – Symptomatic disorders of the urachus are uncommon. This case history documents an episode of small bowel obstruction secondary to an infection in a urachal cyst in a 73-year-old female. Transmural inflammation of the cyst caused the adjacent small bowel to become involved and subsequently obstructed by a fibrous band. Treatment consisted of enterolysis with radical resection of the urachal cyst, the fibrous urachal tract, and the dome of the bladder.

Obstruction of the small intestine can be due to a variety of causes. Symptomatic disorders of the urachus are uncommon and it is rare for a urachal abnormality to cause an intestinal obstruction. This report reviews the case of an adult with an infected urachal cyst that caused an obstruction of the small intestine due to a transmural inflammatory reaction from the cyst to an adjacent segment of small bowel.

Case Report

A 73-year-old female presented to the emergency room complaining of sudden onset of severe thirst, accompanied by frequent urination. A day prior to admission she had noted non-localizing lower abdominal pain. She denied fever, chills, nausea, vomiting, or changes in bowel function. She had been in excellent health until the time of admission.

The patient was taking no medications at time of presentation. Her past medical history was noteworthy for a urinary tract infection nine months prior to admission and for an appendectomy at age 53. The family history revealed insulin-dependent diabetes mellitus in a brother.

Physical examination noted an elderly female in mild distress. Her temperature was 100.8 and the skin was dry. Examination of the head and neck as well as the chest and heart was unremarkable. The abdomen was distended and active bowel sounds were noted. Suprapubic tenderness was evident. No masses, guarding, or rebound tenderness were noted. An appendectomy scar was noted in the right lower quadrant. There were no incisional, inguinal, or femoral herniae. Pelvic and rectal examinations were normal.

Laboratory values: glucose 444mg/dl, hematocrit 47%, and a white blood count of 12,200, with 57 polys, 21 bands, and 22 round cells. Urinalysis showed a large amount of ketones and 5% glucose. A urine culture grew skin flora.

Radiographic studies included a normal chest x-ray, and a plain film of the abdomen revealed mildly dilated loops of small bowel. A localized ileus was thought to be present.

The patient was admitted to the medical service with a diagnosis of a new onset of diabetes mellitus. She was treated with intravenous fluids and insulin. On the following day she was seen in consultation by the general surgery service. A distended non-tender abdomen was noted and no masses were felt. A differential diagnosis was considered of either ileus due to the metabolic abnormalities that accompanied her sudden onset of diabetes mellitus or an intestinal obstruction. After correction of fluid and electrolyte abnormalities an upper gastrointestinal barium study was done. A high grade intestinal obstruction in the jejunum was noted; the patient was prepared for surgery.

After induction of general anesthesia a midline infraumbilical mass could be felt. The abdominal cavity was entered through a midline incision. The proximal portion of the small bowel was dilated and was adherent to an inflamed mass on the anterior abdominal wall. The mass was extraperitoneal in location and was identified as an infected urachal cyst. The transmural inflammation of the infected cyst had caused the small bowel to adhere to the cyst producing a fibrous constricting band around the intestine resulting in small bowel obstruction. The bowel distal to this area had collapsed and there were no other adhesions. There was no evidence of cyst rupture or peritonitis. By means of careful enterolysis the small bowel obstruction was released. The cyst was aspirated of 20 ml of purulent fluid, it was dissected free from the abdominal wall and found to be contiguous with a fibrous tract that led to the dome of the bladder. The urachal cyst, fibrous tract, and dome of the bladder were then resected *en bloc*. (Figure 1.) A small umbilicated mucosal nodule was apparent near the origin of the urachal tract in the dome of the bladder. A two layer closure of the bladder was done and a prevesical drain was placed.

Postoperatively the patient's course was unremarkable. A cystogram on the seventh postoperative day revealed unrelated bilateral bladder diverticuli with no evidence of leakage at the bladder repair site. The patient was sent home on the 13th postoperative day in good condition.

The infected urachal cyst grew *Bacteroides fragilis* and *Streptococcus viridans*. Pathologic evaluation of the specimen revealed a urachal duct cyst with acute inflammation and abscess formation. Cystitis cystica glanduralis of the bladder epithelium was noted.

Discussion

During weeks four to seven of embryological development the urorectal septum divides the cloaca into the anorectal canal and the urogenital sinus. The urogenital sinus further develops with its uppermost portion becoming the urinary bladder. At this point the bladder is continuous with the extraembryonal allantois. As the fetus further develops the bladder enlarges and descends into the pelvis. As it descends it remains connected to the umbilicus via an attenuated tract which becomes the urachus. This connection, the urachus, becomes obliterated in most individuals and forms a fibrous tract.[1,2] The urachus is found between the transversalis fascia and the peritoneum. It has its own fascial covering anteriorly and posteriorly that extends to the obliterated umbilical artery laterally

---

OVLETO CICCARELLI, M.D., Resident in General Surgery. MICHAEL BELKIN, M.D., Chief Resident, General Surgery. THOMAS C. BANEVER, M.D., Attending Surgeon, all of the Hartford Hospital.

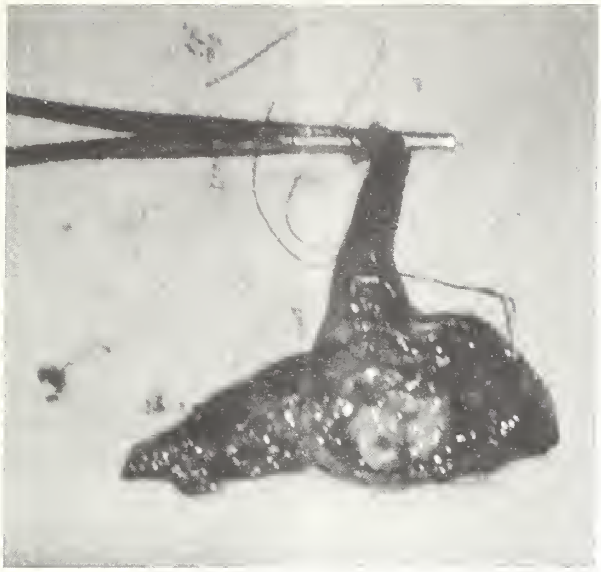


Figure 1

The resected urachal tract, collapsed cyst and dome of the bladder. Note the umbilicated mucosal nodule in the center of the dome of the bladder.

and down to the dome of the bladder inferiorly.[3] This separate space excludes the urachus from the peritoneal cavity and serves to contain urachal leakage or infection in an extraperitoneal fashion.

The urachus has been described as having five distinct clinical anomalies.[3] Patent urachus, a connection of the bladder to the umbilicus acting as a fistula can be congenital or acquired. Persistent urachal sinus drains externally to the umbilicus. A uracho-vesicle fistula drains internally to the bladder. An alternating urachal sinus drains via both routes. A urachal cyst is an isolated cystic cavity that forms along the tract of the urachus, without open drainage to either the umbilicus or the bladder.

Most urachal cysts develop in the lower third of the urachus and generally are asymptomatic.[3] They are thought to arise from an enlargement of the obliterated lumen from desquamation and degeneration of the epithelial lining of the urachus.[2] The cysts may become infected by blood-borne organisms or by an ascending infection from a tiny connection that may remain between the tract and the urinary bladder.[4,5] Infected urachal cysts are considered to be more common in children than in adults.[4]

Signs and symptoms of an infected urachal cyst include lower abdominal pain, fever, dysuria, and a midline suprapubic mass with tenderness.[2,6,7] If left untreated these cysts drain into the umbilicus or to the urinary bladder. Spontaneous rupture of infected cysts into the peritoneal cavity with resultant peritonitis has been described as well as the formation of urachal-enteric fistulae.[7]

Diagnosis of these cysts by ultrasound, CT scanning, and needle aspiration has been described.[4] Excretory urography, cystoscopy, and cystography are useful aids in diagnosis. A normal urinalysis is not incompatible with the diagnosis of an infected urachal cyst.[2] The differential diagnosis of a urachal cyst includes umbilical hernia, vitelline cyst, ovarian cyst, bladder diverticulum, or an abdominal wall tumor.

Intestinal obstruction due to a urachal lesion is a rare occurrence. Blichert-Toft and Axelsson, in a review of the literature in 1977, found two other cases to add to a case that Blichert-Toft had previously described in 1971.[8] In 1977 they reported a case of an intestinal obstruction due to a ruptured urachal cyst that also contained a stone. In their patient, as ours, the small intestine was adherent to an inflamed, infected urachal cyst on the abdominal wall.[8] Blichert-Toft in 1971, reported the case of a 15-year-old boy who had had an intestinal obstruction due to an intraperitoneal urachal tract that passed from the apex of the bladder to the mesentery of the small intestine. The small bowel became obstructed by this fibrous tract.[7] Haupt and Keitel described a similar lesion in a child in 1960. In that case the cecum became twisted around the free intraperitoneal urachal cord.[9] Blichert-Toft and Axelsson cite Amundsen as describing an intestinal obstruction caused by a loop of small intestine that was trapped in the perforated opening of an inflamed urachal cyst.[10]

In our patient the distended abdomen precluded identification of an abdominal mass until adequate relaxation had been obtained with general anesthesia. The infection in the cyst was sufficient to cause her previously undiagnosed glucose intolerance to develop into insulin-dependent diabetes mellitus. The source of the infecting organisms in the cyst could not be identified. The transmural inflammation of the cyst caused an adjacent segment of small bowel to become adherent to it by means of a fibrinous non-purulent inflammatory reaction. Indeed the attached small bowel was beefy red because of the inflammatory response. There was no evidence of an enteric fistula, bowel wall necrosis, or free pus. Treatment consisted of radical resection of the urachal cyst, the fibrous urachal tract, and the dome of the bladder. Resection of the dome of the bladder was done to eradicate the urachal-vesical junction in order to prevent future recurrences of urachal disorders. This approach has been recommended by others.[5,7] Catheter drainage with secondary resection has also been reported.[4]

Urachal lesions causing intra-abdominal disorders, specifically intestinal obstruction, are rare conditions. It is even more unusual in the geriatric age group. This patient is apparently the fifth case to be reported. The surgeon should consider these lesions in the differential diagnosis of the patient with lower abdominal pain and a midline mass. These lesions, if neglected or mismanaged, can lead to an abdominal catastrophe. When confronted with a urachal lesion the surgeon should perform a complete resection. If wide-spread inflammation precludes identification of anatomical boundaries and makes primary resection unfeasible, then wide external drainage with secondary resection should be done.

Conclusion

A case of intestinal obstruction due to an inflamed nonperforated urachal cyst is presented. The development and natural history of these lesions are reviewed. Complete surgical resection is required to remove the urachal lesion and to prevent any chance for future recurrence.

REFERENCES

1. Langman J: Medical Embryology. 4th Ed, Baltimore, Williams and Wilkins 1981, 242-244.
2. Perlmutter AD: Urachal Disorders. In Harrison JH, Gittes RF, Perlmutter AD, et al (Eds). Campbell's Urology. 4th Ed, Philadelphia, WB Saunders Co 1986, 1883-1888.
3. Erlich RM: Urachal Abnormalities. In Glenn JF, ed, Urologic Surgery, 3rd Edition, Philadelphia, JP Lippincott 1983, 603-608.
4. Spataro RF, Davis RS, McLachlan MSF, Linke CA, Borkasic ZL. Urachal Abnormalities in the Adult. Radiology 1983, 149:659-663.
5. Blichert-Toft M, Koch F, Nielsen OV. Anatomic Variants of the Urachus Related to Clinical Appearance and Surgical Treatment of Urachal Lesions. Surg Gyn Ob 1973, 137:51-54.
6. Himan F Jr. Surgical Disorders of the Bladder and Umbilicus of Urachal Origin. Surg Gyn Ob 1961, 113:605-614.
7. Blichert-Toft M and Nielson OV. Diseases of the Urachus Simulating Intra-Abdominal Disorders. Am J Surg 1971, 122:123-128.
8. Blichert-Toft M and Axelsson CK. Urachal Lesion Associated with Calculus Formation Causing Intestinal Obstruction. Scand J Urol Nephrol 1977, 11:77-79.
9. Haupt GJ, Keitel HK. Intestinal Obstruction in a Child with Peritonealized Urachal Remnant. J Pediat 1960, 57:741-742.
10. Amundsen G (Cited by Blichert-Toft M and Axelsson CK). Urachuscyste Som Aarsak Til Ileus. Nordmed 1959, 62:1484.

Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

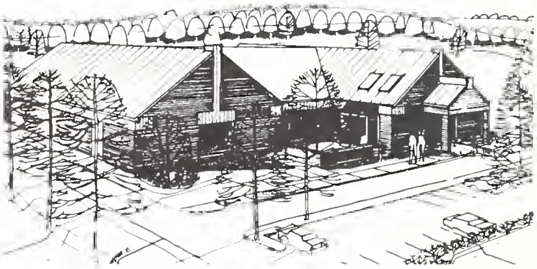
In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:

- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:

- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Medical) for Ophthalmology.
- CO_2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

Important Advances in Clinical Medicine

Orthopedics

The Scientific Board of the California Medical Association presents the following inventory of items of progress in orthopedics. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in orthopedics that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Orthopedics of the California Medical Association and the summaries were prepared under its direction.

Shoulder Arthroscopy

Arthroscopic studies of the shoulder joint have significantly increased our knowledge of the anatomy and pathologic disorders of the shoulder joint, emphasizing the complex nature of the shoulder function. The shoulder joint is commonly a source of pain, and diagnostic modalities that accurately evaluate the soft tissue source of pain have traditionally been limited. Arthroscopy has allowed direct visualization and identification of shoulder disorders heretofore not understood and has further clarified the interrelationships and evolution of pathologic conditions of the shoulder joint.

The indications for shoulder arthroscopy include pain, clicking or catching within the shoulder joint that interferes with function and is not otherwise identified by clinical tests. Loose bodies detected radiographically can be removed, a shoulder joint with degenerative disease can be debrided, septic joints can be drained, synovectomy can be done in cases of chronic synovitis, articular surface problems can be evaluated and biceps tendon lesions can be identified.

Isolated glenoid labral tears, previously poorly understood, have become associated with clinical syndromes and may be treated by simple arthroscopic resection of the torn area.

Shoulder instability has been further evaluated to identify a spectrum of clinical instability, with arthroscopic surgical techniques being applied for both diagnosis and treatment of shoulder instability, including the stabilization and evaluation of acute shoulder dislocations. Arthroscopic stabilization of an unstable shoulder by percutaneous techniques that fix the anterior capsule to the glenoid neck have been developed.

Arthroscopic evaluation of the rotator cuff and subdeltoid bursa has allowed the evolution of surgical techniques that decompress the coracoacromial arch by resecting the coracoacromial ligament and removing bone from the inferior surface of the acromion to treat the classic impingement syndrome. Other rotator cuff syndromes, including partial rotator cuff tear associated with pain on throwing, have been identified and treated by simple arthroscopic debridement.

A precise surgical technique coupled with experience in developing the technical skills of shoulder arthroscopy is required to keep complications to a minimum. Shoulder arthroscopy is an effective adjunct for identifying and managing shoulder disorders and to further understand the spectrum of shoulder disease.

Wesley M. Nottage, M.D.
Laguna Hills, Calfornia

REFERENCES

Andrews JR, Carson WG Jr, Ortega K: Arthroscopy of the shoulder: Technique and normal anatomy. Am J Sports Med 1984, 12:1-7.

Johnson LL: Arthroscopic Surgery Principles and Practice, 3rd Ed. St. Louis, CV Mosby 1986, pp 1301-1445.

Pappas AM, Goss TP, Kleinman PK: Symptomatic shoulder instability due to lesions of the glenoid labrum. Am J Sports Med 1983, 11:279-288.

Microvascular Transfer of Bone—An Update

Microvascular reconstructive operations offer new therapeutic solutions for difficult bone loss problems. Various bones are used for vascularized bone grafts including rib, scapula, iliac crest, radius and fibula. The two bones most commonly used for vascularized grafts are the fibula and iliac crest. Donor selection is based on the length and shape of the defect and the need for additional tissues such as skin, fat and muscle at the recipient site.

For a long-bone defect greater than 6 cm, vascularized bone grafts have been shown to heal faster and with greater union rate than nonvascularized grafts. These large defects commonly occur following limb-salvage procedures for both malignant and locally aggressive bone tumors and in patients with chronic osteomyelitis or traumatic bone loss. Other indications include congenital pseudarthrosis of the tibia.

Long-bone defects are most commonly treated with fibular grafts that are transferred with their vascular supply formed by the peroneal artery and vein. Advantages of the fibula as donor include a length up of to 30 cm and the ability to include muscle and overlying skin if needed. For smaller defects or those conditions requiring anatomic sculpturing of the donor bone, the iliac crest is an excellent choice. The iliac crest with a groin flap is especially useful when there is bone loss accompanied by extensive soft tissue loss. The vascular pedicle is formed by the deep circumflex iliac artery and vein.

Results of these procedures are best in patients who undergo limb reconstruction after resection of a bone tumor (87% primary union rate) and for forearm or mandibular defects (100% primary union rate). For the most difficult cases of chronic osteomyelitis, 60% of vascularized grafts ultimately heal.

Vascularized bone grafts have the advantage of maintaining a physiologic blood supply, thus not depending on subsequent revascularization; preserving live osteocytes, osteoblasts and osteoclasts, and greater bone strength. Contraindications to microvascular transfer of bone include a patient who is a poor risk for a lengthy operative procedure, a limb with limited salvage potential and where there is a probability of success with a conventional bone graft.

Gary K. Frykman, M.D.
Loma Linda, Calfornia

REFERENCES

Moore JR, Weiland AJ: Free vascularized bone and muscle flaps for osteomyelitis. Orthopedics Jun 1986, 9:819-824.

Weiland AJ, Moore JR, Daniel RK: Vascularized bone autografts—Experience with 41 cases. Clin Orthop Apr 1983, 174:87-95.

Wood MB: Free vascularized bone transfers for nonunions, segmental gaps, and following tumor resection. Orthopedics Jun 1986, 9:810-816.

Wood MB, Cooney WP III, Irons GB Jr: Skeletal reconstruction by vascularized bone transfer: Indications and results. Mayo Clin Proc Nov 1985, 60:729-734.

Immediate Stabilization of Fractures in Patients With Multiple-Systems Injuries

Severe head injury and uncontrolled hemorrhage remain the primary causes of early death in victims of multiple-systems trauma. If a victim survives the first 24 to 48 hours, the most common cause of death is adult respiratory distress syndrome (ARDS), followed by multiple-systems organ failure and sepsis.

Traditionally, treatment of fractures has been relegated to the lowest priority during the initial treatment phase. Recent evidence suggests, however, that immediate stabilization of unstable fractures of the femur, pelvis and occasionally the spine may play a major role in reducing the morbidity and mortality in these patients. Immediate stabilization of other long bone fractures, such as the humerus, may be indicated as well.

Immediate stabilization of fractures offers many advantages in patients with multiple-systems injuries: Stabilization of fractures significantly reduces pain, which reduces the need for narcotics. Narcotics are respiratory and cerebral depressants, and their use increases the need for ventilatory support and possibly the incidence of ARDS. Fracture stability facilitates nursing care and increases patient mobility, permitting a vertical chest position essential for pulmonary care. Greater patient mobility also lowers the incidence of decubitus ulcers, thrombophlebitis and other phenomena associated with prolonged bed rest. Immediate fracture stability allows joints and muscles to be rehabilitated earlier, resulting in an earlier return to function and a better long-term result from musculoskeletal injuries. A group of patients with immediate stabilization of major fractures was compared with a historical control in which early fracture stabilization was not done. When the injury severity score was between 26 and 40, early fracture stabilization reduced the incidence of ARDS from 32% to 9%, mortality dropped from 9.3% to 3.4% and length of hospital stay was cut by 50%. Others have shown similar outcomes.

Immediate stabilization of fractures in these polytrauma patients can be challenging, as the fractures are often complex and open. One or more surgical teams experienced in the treatment of patients with multiple injuries are usually necessary to achieve immediate stabilization of major fractures without undue morbidity.

M.W. Chapman, M.D.
Sacramento, Calfornia

REFERENCES

Hanscom DA, Chapman MW, Holcaft J: Immediate Fixation of Fractures in Patients With Multiple System Trauma. Presented to the American Academy of Orthopaedic Surgeons Annual Meeting, New Orleans, February 1986.

Johnson KD, Cadambi A, Seibert GB: Incidence of adult respiratory distress syndrome in patients with multiple musculoskeletal injuries: Effect of early operative stabilization of fractures. J Trauma May 1985, 25:375-384.

Lozman J, Deno DC, Feustel PJ, et al: Pulmonary and cardiovascular consequences of immediate fixation or conservative management of long-bone fractures. Arch Surg Sep 1986, 121:992-999.

Riska EB, von Bonsdorff H, Hakkinen S, et al: Prevention of fat embolism by early internal fixation of fracture in patients with multiple injuries. Injury Nov 1976, 8:110-116.

Riska EB, von Bonsdorff H, Hakkinen S, et al: Primary operative fixation of long bone fractures in patients with multiple injuries. J Trauma Feb 1977, 17:111-121.

Recent Advances in the Treatment of Chronic Posttraumatic Osteomyelitis of the Tibia

The persistence of bone infection can be attributed to the presence of sequestrum, nonunion of a fracture or retained metal use for internal fixation. Control of bone infection requires debriding all sequestra and surrounding necrotic tissue with the administration of appropriate antimicrobial therapy. In ununited tibial fractures, bone debridement followed by cancellous bone-grafting procedures and external fixation have achieved a high rate of bony union. Following healing of the fracture, infection is more easily managed and in many instances eradicated.

Optimal treatment of chronic osteomyelitis of the tibia is often adversely affected by the absence of an adequate soft tissue envelope. The use of local muscle flaps to reestablish adequate soft tisse coverage improves infection control. In addition, recent advances in microvascular techniques have allowed for the transfer of muscle, myocutaneous, osseous and osteocutaneous flaps to the tissue-deficient site. In our experience, the use of local muscle flaps or vascularized free-tissue transfers, in combination with appropriate orthopedic procedures and antimicrobial therapy, has resulted in an increased success rate in the treatment of this difficult problem.

M.J. Patzakis, M.D.
J. Wilkins, M.D.
R. Sherman, M.D.
Los Angeles

REFERENCES

Fitzgerald RH Jr, Ruttle PE, Arnold PG, et al: Local muscle flaps in the treatment of chronic osteomyelitis. J Bone Joint Surg (Am) 1985, 67:175-185.

Patzakis MJ, Watkins R, Harvey JP Jr: Postero-lateral Bone Grafting for Infected Non-unions of the Tibia. In Moor TM (Ed): American Academy of Othropaedic Surgeons Symposium on Trauma to the Leg and Its Sequelae. St Louis, CV Mosby, 1981, pp 235-240.

Weiland AJ, Moore JR, Daniel RK: The efficacy of free tissue transfer in the treatment of osteomyelitis. J Bone Joint Surg (Am) Feb 1984, 66:181-193.

Biopsy of Primary Bone Tumors

In this era of limb salvage, the "simple" biopsy is a crucial determinant of patient outcome. Precautions relate to the timing of biopsy, the type of biopsy, the direction of incisions, arthroscopic biopsy, the extent of a biopsy and the use and placement of wound suction.

Biopsy trauma alone may increase the apparent tumor extent as seen on imaging studies. Therefore, all local staging procedures—that is, isotope scans, angiograms, computed tomography and magnetic resonance imaging—should be done before the biopsy. An open biopsy is usually best. Closed biopsy may be useful to diagnose suspected metastases to bone, but histologic diagnosis of primary tumors can be difficult, requiring larger tissue specimens for multiple studies including special stains, immunoperoxidase studies and electron-microscopic evaluation. Frozen section confirmation that representative tissue has been obtained is always advisable. Alignment of biopsy incisions is crucial because the scar must later be resected en bloc with the tumor. Incisions should be vertical on the extremities and transverse only at the pelvic rim and joint flexion creases. Poorly placed incisions can prevent any attempt at preserving a limb and can force amputation. It is suggested that a preliminary biopsy be done only by a physician who is fully qualified to carry out the definitive surgical procedure. Arthroscopic biopsy in the evaluation of joint symptoms due to an adjacent tumor is cotraindicated. Transsynovial biopsy of a tumor will seed the entire joint with cells, creating an exceptionally difficult surgical problem.

For a number of reasons, only a peripheral wedge of tumor should be excised to show its type and highest cellular grade. Peripheral tissue is often less mineralized and easier to cut for frozen section. Bleeding is easier to control after a peripheral biopsy than a larger, deeper incision, and further weakening of the bone is avoided. Management of the biopsy site should include rigorous hemostasis and wound suction to help prevent dissemination of tumor cells along adjacent fascial planes. Suction tube(s) are brought out in line with the incision to facilitate later en bloc resection.

Tillman Moore, M.D.
Los Angeles

REFERENCES

Enneking WF: The issue of the biopsy (Editorial). J Bone Joint Surg (Am) Oct 1982, 64:1119-1120.

Joyce MJ, Mankin HJ: Caveat arthroscopos: Extra-articular lesions of bone simulating intra-articular pathology of the knee. J Bone Joint Surg (Am) Mar 1983, 65:289-292.

Mankin HJ, Lange TA, Spanier SS: The hazards of biopsy in patients with malignant primary bone and soft-tissue tumors. J Bone Joint Surg (Am) Oct 1982, 64:1121-1127.

Moore TM: Closed biopsy, In Harrington K (Ed): Orthopaedic Management of Metastatic Bone Disease. St Louis, CV Mosby, 1987, in press.

Simon MA: Biopsy of musculoskeletal tumors. J Bone Joint Surg (Am) Oct 1982, 64:1253.

Alternatives to Cemented Joint Prostheses

Although the cemented total hip replacement has outperformed all other reconstructive procedures for the arthritic hip, ten-year-follow-up studies have shown a loosening rate at the bone-cement junction approximating 25%. Additionally, osteolysis, in some part due to the fragmentation of cement and the body's response to this particulate debris, may make further reconstruction difficult. The cementless total hip replacement has been developed to overcome this long-term loosening and osteolysis.

Cementless technology has developed along two conceptual lines. The Europeans have concentrated their efforts on macrointerlock of bone to prosthesis, while North Americans have concentrated on microinterlock of bone to prosthesis. Macrointerlock prostheses, because of their mechanical weakness, relatively high loosening rate and difficulty in removal due to bony ingrowth, have few proponents in this country.

The microinterlock prosthesis is now used rather extensively in this country, especially in the treatment of arthritic problems in younger patients. In the microinterlock system, the prosthesis is coated with beads or wires, creating 200 to 500 micron surface pores on the prosthetic surface for bony ingrowth. Several problems inherent in this technique must be recognized. The process of attaching the porous material to the prosthesis significantly weakens its structure and may cause it to break in the long term. The percentage of pores that actually are ingrown with bone varies substantially in studies, but it appears that only about 30% of the material is actually ingrown with bone. Thus, the question remains whether these devices will actually biologically bond with the femur and the acetabulum. Other problems include low-grade pain and limp, technical difficulty in implanting the prosthesis and stress shielding or resorption of unstressed bone. Despite these cautions, excellent short-term results have been reported.

It is important to continue to develop new concepts and techniques of biologic bonding of prosthesis to bone. Cement has certainly been effective, but osteolysis is of significant concern. Microinterlock shows promise in the short term. What long-term problems it will engender are yet to be seen.

Richard B. Welch, M.D.
San Francisco

REFERENCES

Amstutz HC: Arthroplasty of the hip: The search for durable component fixation. Clin Orthop Nov 1985, 200:343-361.

Engh CA, Bobbyn JD, Matthews JG II, et al: Biologic fixation of a modified moore prosthesis, In The Hip Society: Proceedings of the Twelfth Open Scientific Meeting of the Hip Society. St Louis, CV Mosby, 1984, pp 95-131.

Orthopedic and Soft Tissue Applications of Magnetic Resonance Imaging

Magnetic resonance imaging (MRI) is a relatively new noninvasive diagnostic technique that uses magnetic fields and radio-frequency signals to generate cross-sectional representations of internal anatomy. Advantages of the technique include the absence of a known biologic hazard, direct multi-planar imaging capability without sacrifice of spatial resolution and the ability to provide excellent discrimination among various normal and pathologic soft tissue structures. MRI has been shown to provide useful diagnostic insight into various orthopedic disorders, particularly those affecting muscles, tendons, ligaments, articular cartilage and bone marrow.

The method shows greater sensitivity than skeletal scintigraphy in the early diagnosis of ischemic necrosis involving the femoral head and has shown promising preliminary results in the evaluation of this disease at other sites. Owing to its extreme sensitivity for pathologic processes that begin in bone marrow, MRI can also contribute to the early diagnosis of acute hematogenous osteomyelitis, metastatic disease to the skeleton and myeloproliferative disorders. In the staging of primary osseous neoplasms, the technique is superior to computed tomography (CT) in determining the degree of marrow involvement and soft tissue extension, although cortical bone destruction and matrix calcification or ossification are slightly less well depicted.

MRI has contrast discriminating capabilities that offer advantages over CT, particularly in establishing the precise extent of primary soft tissue pathology, including infection and neoplastic disease. In cases of severe trauma, especially those involving the knee joint, the method can reliably diagnose meniscal damage, cruciate and collateral ligament tears, articular cartilage pathology and intra-articular effusion. MRI may eventually replace arthrography and CT in the evaluation of internal derangements affecting the temporomandibular joint. As clinical experience is gained and technical improvements are made, the technique should also become important in the initial assessment of synovial inflammatory disorders.

In the spine, MRI offers accuracy comparable to that of CT and myelography in the diagnosis of intervertebral disc herniation and is more sensitive to early disc degeneration. In addition, the method can assist in the early diagnosis and characterization of disc space infections and may be beneficial in the follow-up of patients who have undergone a spinal operation or chemonucleolysis.

Patients with total joint replacements and other orthopedic hardware can be safely evaluated by MRI, and image degradation by artifacts is less of a problem than with CT. The technique has also been successfully applied to diverse orthopedic conditions, including the carpal tunnel syndrome, Legg-Calvé-Perthes disease, rotator cuff tear and other glenohumeral joint disorders, stress fractures and pedal neuromas. The potential of MRI as applied to orthopedic disease is yet to be fully explored, and spectroscopy of phosphorus 31 as well as other nuclei may yield valuable insight into the physiologic aspects of such disorders in the future.

David J. Sartoris, M.D.
Donald Resnick, M.D.
San Diego

REFERENCES

Berquist TH, Ehman RL, Richardson ML (Eds): Magnetic Resonance of the Musculoskeletal System. New York, Raven Press, 1987.

Pettersson H, Hamlin DJ, Mancuso A, et al: Magnetic resonance Imaging of the musculoskeletal system. Acta Radiol May-Jun 1985, 26:225-234.

Richardson ML (Ed): Magnetic resonance Imaging of the musculoskeletal system. Radiol Clin North Am Jun 1986, 24:135-335.

Meniscal Repair

A symptomatic meniscal tear, especially in the young, is a serious injury with potentially grave consequences for the knee because the menisci enhance joint stability and reduce the compressive forces sustained per unit area of articular cartilage.

The therapeutic approach to meniscal tears depends on the tear type, location, associated ligamentous injuries and the age and activity of the patient. Treatment options include meniscectomy, partial meniscectomy and meniscal repair. Total meniscectomy is rarely necessary and is not to be undertaken lightly as degenerative arthritis may result. Arthroscopic partial meniscectomy spares portions of the meniscus, allowing for partial fulfillment of its weight-bearing and joint stabilization roles. Although degenerative changes are less likely to develop, joint mechanics are still altered. Meniscal repair, if feasible, preserves normal knee mechanics and logically should provide superior long-term results.

Certain meniscal tears should and do heal. The outer (peripheral) 25% of the meniscus has been shown to be vascular, and healing originates from the peripheral synovial tissues. Meniscal repair can be achieved by open (arthrotomy) and closed (arthroscopy) methods. The arthroscopic method affords greater access to the posterior horn of the lateral meniscus, tears slightly within the meniscocapsular junction and tears deep to the collateral ligaments.

Arthroscopic meniscal repair involves four steps: selecting appropriate tears, preparing the tear margins and adjacent synovium, suturing the tear and rehabilitating post-operatively. Meniscal tears amenable to repair are longitudinal tears more than 1.5 cm within the vascular zone, without serious secondary tears and with demonstrable hypermobility. In addition, ligamentous stability is required. In our experience, 15% of all meniscal tears are repairable.

Thomas D. Rosenberg, M.D.
Lonnie E. Paulos, M.D.
Richard D. Parker, M.D.
Salt Lake City

REFERENCES

Rosenberg TD, Scott SM, Coward DB, et al: Arthroscopic meniscal repair evaluated with repeat arthroscopy. Arthroscopy 1986, 2:14-20.

Rosenberg TD, Scott SM, Paulos LE: Arthroscopic surgery: Repair of peripheral detachment of the meniscus. Contemp Orthop Mar 1985, 10:43-50.

Sports Footwear

Significant advances have occurred in the design and manufacture of sports footwear. The use of impact-absorbing synthetic plastics such as polyurethane and ethylene vinyl acetate has resulted in lighter weight shoes that resilient and durable yet flexible.

Scientific studies of the mechanisms of sports injuries have found an association with footwear in certain instances. In football, severe knee and ankle injuries can be caused by unyielding foot fixation. This had led to the widespread use of soccer style shoes with molded rubber cleats that develop less torque at the shore-surface interface than traditional shoes.

Knowledge of the foot and ankle stresses sustained in different activities has stimulated the production of "sports specific" shoes. Shoes specifically designed for running, aerobics and court spaces are not interchangeable. For example, running shoes provide hindfoot cushioning and stabilization to withstand loads of as much as three times body weight at heel strike. This is achieved by a thickened sole, a flared heel and a firm, snugly fitting counter. Significant plantar flexion has been shown to decrease cyclic loading of the Achilles tendon.

Court shoes used for tennis and racquetball must accommodate pivoting and lateral movements. Low-profile rubber soles provide increased traction but do not afford the same shock-absorbing capacity as running shoes. In addition, minimal heel elevation that facilitates quick and explosive movements does not relax the Achilles tendon.

The most important criteria in shoe selection are fit and comfort. The longest toe should clear the end of the toe box by half an inch. Leather uppers are generally more expensive but conform best to the shape of the foot over time, thus increasing comfort.

With the exception of barefooted placekickers and occasional runners, the effect of recent developments in footwear has been to maximize performance while decreasing the risk of injury.

Richard A. Marder, M.D.
Sacramento, Calfornia

REFERENCES

Cavanagh PR: The Running Shoe Book. Mountain View, Calif, World Publications, 1981.

Stamford B: Choosing shoes for your sport. Physician Sportsmed Oct 1984, 12:191.

Osseous and Osteochondral Allografts

Bone and cartilage allografts have proved to be feasible and practical alternatives for reconstructing arthritic joints, obliterating bone defects following trauma or bone dissolution due to various causes and replacing large segments of bone destroyed by bone tumors. The use of allografts to replace large bone defects in revisions for failed total hip replacement has been successful. The allograft bridges the bone defect and provides a scaffold for the ingrowth of vascularized connective tissue that carries the elements necessary for new bone production. The latter occurs by resorption and replacement of dead trabeculae and appositional growth around dead trabeculae.

Although there is an immune response to transplanted allograft bone, immunosuppressive drugs are not used to neutralize the reaction because of their serious side effects. Graft immunogenicity may be reduced by freezing the allograft before transplantation and forcefully lavaging the allograft bone to remove the fat cells and hematopoietic elements that provoke an immune response in a patient.

Treatment of cartilage allografts with dimethyl sulfoxide and 10% glycerine before freezing has been reported to maintain viability of about 50% of donor chondrocytes. There is a question, however, as to the capacity of these cells to produce collagen and mucopolysaccharides after thawing and transplantation.

More recently there have been reports of the successful resurfacing of portions of synovial joints in the lower extremities with fresh nonfrozen composite graft of hyaline cartilage and bone. The bone portion provokes a clinically insignificant immune response. The cartilage of the graft is thought to be "immunologically privileged" because the matrix prevents the diffusion of large molecules of antigens and antibodies. Because of this, the afferent and efferent arms of the immune reaction cannot interact and produce a rejection response.

Marvin H. Meyers, M.D.
La Jolla, Calfornia

REFERENCES

Gross AE, Silverstein EA, Folk J, et al: The allotransplantation of partial joints in the treatment of osteoarthritis of the knee. Clin Orthop 1975, 108:7-14.

Harris WH, Crothers O, Oh I: Total hip replacement and femoral-head bone-grafting for severe acetabular deficiency in adults. J Bone Joint Surg (Am) Sep 1977, 59:752-759.

Meyers MH: Resurfacing of the femoral head with fresh osteochondral allografts. Clin Orthop Jul-Aug 1985, 197:111-114.

Parrish FF: Treatment of bone tumors by total excision and replacement with massive autologous and homologous grafts. J Bone Joint Surg (Am) 1973, 55:1-22.

Endoprosthetic Limb Salvage Operation for Malignant Bone Tumors

The historical approach to the local control of primary malignant bone tumors, including osteosarcoma, chondrosarcoma, fibrosarcoma, malignant fibrohistiocytoma and, in certain instances, Ewing's sarcoma, has been amputation. Recent advances in surgical resection techniques, muscle transfers and improved mechanical design of custom endoprostheses have established the limb-sparing operation as a possible alternative for local control of malignant bone tumors when coupled with preoperative adjuvant therapy.

Two basic goals must be achieved by a limb-sparing operation for malignant bone tumors. The local recurrence rate in a salvaged extremity should be no higher than that achieved with amputation, and the reconstructed extremity should be enduring and functional, without requiring repetitive hospital admissions for the management of local complications or complex revisional procedures.

The functional results of endoprosthetic reconstruction following wide resection for malignant bone tumors have been excellent about the knee and good to excellent at the hip. Scapular and proximal humeral replacements permit normal hand and elbow function and avoid the need for orthoses and cumbersome prostheses. For pelvic lesions, and internal hemipelviectomy, when feasible, retains the extremity and results in an extremity with good cosmetic appearance and moderate function. Neurovascular gastrocnemius muscle transfers permit endoprosthetic replacement of the proximal tibia with the anticipation of reasonable extensor function of the knee. Expandable prostheses make limb salvage for a very young patient, especially with Ewing's sarcoma, feasible.

Preoperative chemotherapy and radiation therapy have decreased the local recurrence rate after a limb-sparing operation to 5%, not statistically different from the local recurrence rates seen following amputation. In the absence of preoperative adjuvant chemotherapy, the reported local recurrence rates range between 20% and 60%.

In summary, limb-sparing surgical techniques using improved custom endoprostheses with preoperative adjuvant chemotherapy now permit a limb-sparing operation in most patients presenting with primary malignant bone tumors. Amputation for the primary control of malignant bone tumors continues to be indicated for those patients who present with very large tumors, those with incorrectly placed or infected biopsy incisions and patients who present with tumors of the distal tibia or the foot.

Jeffrey J. Eckardt, M.D.
Los Angeles

REFERENCES

Eckardt JJ, Eilber FR, Dorey FJ, et al: The UCLA experience in limb salvage surgery for malignant tumors. Orthopedics 1985, 8:612-621.

Eilber FR, Eckardt JJ, Morton DL: Advances in the treatment of sarcomas of the extremity: Current status of limb salvage. Cancer Dec 1985, 54:2695-2701.

ADVISORY PANEL TO THE SECTION ON ORTHOPEDICS

Michael W. Abdalla, M.D.
Advisory Panel Chair
CMA Scientific Board Representative
Orange

Preston M. James, M.D.
CMA Section Chair
San Francisco

William Tipton, Jr, M.D.
CMA Section Secretary
Sacramento

Blair C. Filler, M.D.
CMA Section Assistant Secretary
Inglewood

George Wiesseman, M.D.
Loma Linda University

David S. Schurman, M.D.
Stanford University

Robert Szabo, M.D.
University of California, Davis

Robert A. Baird, M.D.
Section Editor
University of California, Irvine

Gerald Finerman, M.D.
University of California, Los Angeles

Wayne H. Akeson, M.D.
University of California, San Diego

James H. Morris, M.D.
University of California, San Francisco

Tillman Moore, M.D.
University of Southern California

Richard B. Welch, M.D.
San Francisco

Oral History and Contemporary Medical Education

Works in Progress

ARTHUR J. VISELTEAR, Ph.D., M.P.H.

In 1980, I began a study of the Yale School of Medicine. As with others who have studied contemporary medicine, I concluded that medical schools were experiencing some interesting perturbations, and that the turbulence was not just national but was affecting our School as well. My study sets out to document this peculiar time node in the history of the School, a node extending but five years in duration, from 1982-1987.

How I proceeded to accumulate this documentation for my study necessitates a few minutes of discussion. First of all, it is important to say at the outset that the recent past is a legitimate topic. My former mentor, the late C.D. O'Malley, referred to history as anything prior to the mid-19th century! Anything after that, he said, was "journalism" and should be summarily rejected! It took me some time to counter his argument, but I can now say that he was wrong. The recent past is not only important, but vital and necessary, for if the recent past is not studied, how else will it be possible to know what happened, not only in the Yale of the 1980s, but in the Offices of the National Security Council in the White House!

Let me tell you about the records available at Yale which the contemporary historian can study. There are the minutes of various governance bodies: for example, the Board of Permanent Officers and the Medical School and Medical Student Councils. There are the memos and communications issued by the Dean's Office, the Office of the Associate Dean for Medical Education and Student Affairs, the Office of the Associate Dean for Government and Community Relations, and the Office of the Associate Dean for Graduate and Continuing Education. There are also various reports, such as those issued by the Assistant Dean for Admissions, and publications of the medical center, such as *Yale Medicine* and *Medical Center Life* and the newsletter issued by the Office for Women in Medicine. There are the annual and monthly bulletins issued by the Offices of the Comptroller and the Office of Grants and Contracts. There are reports and minutes from the Hospital, University bulletins, memos, and so on: In reality an avalanche of paper, the detritus of the medical center! All of which tells us what?

Well, I think, a good deal. Let me explain selectively. We know where our money is coming from. We know also that the rate at which monies entering the medical school from federally supported grants for research, which has been declining in other schools, is holding its own at Yale, while the rate entering the School for clinical service has been increasing. We know that tuition has gone up slightly and that endowment is weaker here than at any other first-rate school. We know that our curriculum is in flux; that our students score very well on standardized exams; that their average age is increasing; that there are increasing numbers of women applying and gaining entrance to medical schools each year; that nationally the number of minorities applying to medical schools have decreased faster than the number of total applicants to all schools, which, incidentally, has also decreased; and that our students are leaving the School with a greater indebtedness than ever before. We know about fund raising drives, about the new Howard Hughes gift, and the new construction, taking the form of a Center for Molecular Medicine, a Faculty Practice Plan building, the Yale Psychiatric Institute, and the new addition to the medical library.

So, after a little digging, we appear to know a lot. Or do we? If the purpose of the study is to write institutional history, then the task appears relatively easy. Read as many documents as are available. Read the Dean's and Chairmen's annual reports. Read the historical documentation which has been deposited in Yale's archives. And do some interviewing, about which I'd like to tell you this evening.

You see, what started out as standard institutional history has now become something else. And that something else is an oral history, an autobiography, of the Yale School of Medicine.

If changes are occurring in the medical school who would know better than the principal and not so principal players who comprise the medical school? If there is meaning to the attendant riddles of contemporary medicine who would know better than the faculty? If there are social forces pressing on the School from without, who would

---

ARTHUR J. VISELTEAR, Ph.D., M.P.H., Associate Professor of the History of Medicine and Public Health, Section of the History of Medicine, Yale University School of Medicine, New Haven, Conn.

This paper was presented at a meeting of the "Ladies Aid Society," a group of physicians and surgeons practicing in the New Haven Community, Graduate Club, December 6, 1986.

know better than the Chairman of the Department of Internal Medicine or the Department of Surgery? And if there is something new or subtle happening to the School, who would know better than the School's administrators, students, alumni, librarians, secretaries, and business managers?

I had my own interests. I wanted to learn about the School's relationship to the University, the community, the federal government, and to foundations and industry. I was interested in basic scientists and clinicians, interested in their principal responsibilities for research, teaching and service, their loyalties, and their attendant social emoluments.

I intended to ask questions about motives and specialty interests, curricula design and implementation, about changing needs and expectations. I wanted to find out what made students tick and I hoped that they would be open with me, revealing in the interview their particular concerns and musings about their place in the scheme of things not only at Yale, but in the medical universe.

In a sentence, I intend to take a photograph of contemporary Yale, in Eudora Welty's felicitous words, "to stop time from running away."

Now, as you can well imagine the players of the medical school are highly individual and occasionally picturesque. Each player is engaged in a variety of activities, nearly all of which involve tradition or change, and, in some cases, such as those being considered for tenure or whose grants are in jeopardy, even survival. As someone or other once wrote, "we are not where we once were and we can't go back again." And where we are now, I think, is in a transitional period. It is this transitional time that I am after and which I shall endeavor to record.

But even in a transitional state there are constants. One such constant is the struggle to gain admission to medical school, which, despite the national decrease in numbers remains the major preoccupation of students wishing to go on to medical school. As one student told me: "I remember that in my first year of college I was troubled by a low grade so I called home feeling sorry for myself. My parents did just what parents are supposed to—they reassured me. 'These are the best years of your life,' they said. 'The future will take care of itself. Enjoy yourself.' Well, of course they were right. But all of us are such overachievers that we always took ourselves too seriously. Grades are everything. The competition was terrible. Everyone experienced spasms of anxiety."

I asked a number of students if they were premeds. "Sure," said one student, "but I never admitted it." Why? "Because being a premed conjures up negative images such as compulsiveness and meanness!" Another said something similar: "We never told anyone our ultimate objective. Instead we identified ourselves as math, bio, or chem majors. Admitting you were a premed lowered you in the eyes of your classmates. It meant you were competitive, aggressive, or worse, an engineer!"

How did you like the course work at Harvard?, I asked another student. "As soon as you get there," he said, "you learn never to get below a 'B.' Then you also learn that medical school admission committees expect breadth, so you're told to take courses which really interest you. And then you hear that under no circumstances should you take risks! You hear a hundred times that you need good grades to get into medical school. So you're pulled in different directions. You can't take risks; you can't do what you want. And right from the beginning you're off on a whole life of panic."

It is just such comments that reveal the truth of Lewis Thomas' observation that medical schools have "a baleful and malign impact" on both the college curriculum and the students themselves.

Another constant is complaints about the curriculum. "Have you learned much?," I asked. "I suppose so," was the answer, "but there are so very few courses in which we're taught to think creatively. We just get so much of it at one time. The faculty, God bless them, come in and cast their pearls and we try to pick them up. Well, maybe they're not pearls. Jelly beans is more like it. They come in and cast their jelly beans and in the midst of all this candy is one or two pearls." Another student felt the same. "Many of the lectures are good and we know that the material covered is the best and the latest, but most of what we get escapes us. I know that one day in the future I'll say: 'Damm! He was the guy who could have told me how this works. And he probably did!' But now its just an endless parade of facts."

Have you been challenged?, I asked. "No. I expected to be more challenged than I've been. The teaching is really less than adequate. Everybody expects people to say: 'Oh, you went to Yale. You must be very good.' Well, we probably are very good, but for many faculty this attitude is a great excuse for not having to work too hard at teaching. If you ask me what I resent most about the first two years of medical school it's this: If a teacher has to deliver only one or two lectures a year they really should have made them more intelligible."

How students decide which subspecialty to pursue is based on many factors including the rather obvious interest and aptitude for a field, life-style expectation, or personal ambition to the less obvious such as role models observed in one's family or during the course of medical education. There's not surprisingly a good deal of uncertainty. The scientific minded usually select careers in academic medicine as clinical or basic scientists, but not always; and the more humanistically minded usually pursue careers in one of the primary care subspecialties, but, again, not always. As one student remarked:

> "I came to Yale to do primary care, but now I'm off to the Brigham in Boston to do internal medicine. Once I found out how exciting and intellectually challenging the wards were my career decision took on a momentum all of its own and now I see myself in clinical research and academic medicine."

I asked a student if he planned to remain in basic science after he left Yale, and he said:

> "Oh, yes. It's science that interests me. I like working with puzzles and I want to be surrounded with people who also like puzzles. We're all trying to put pieces together. It's not knowing and then knowing...The reward is knowing you're on top of something; that you know more about a subject, no matter how small, than anyone else. The real pleasure is seeing your name in print and saying: 'Here's something uniquely me. I've done this. It's mine...' "

One student decided upon psychiatry. What about internal medicine, I asked? No, she said. "Those who go into internal medicine have different values. They're strong in the basic sciences. Sometimes I even thought that their interest in science far exceeded their interest in caring for patients. They even acted as if a computer were in a bed instead of patient. They themselves are mechanical and appear automated. But the truth of the matter," she added, "is that internal medicine is the most complex branch of medicine. Nonetheless, psychiatry is more challenging!" Why, I asked? "Because psychiatry is not as conclusive. To be good at medicine you have to be encyclopedic; to be good at psychiatry you have to like thinking. Good internists represent the science of medicine; good psychiatrists it's art."

Another student headed for internal medicine said that he was attracted to internal medicine because of its dependence upon "hard science." He said internal medicine was the least pseudo-scientific of the clinical disciplines and it's the most interesting. Those house officers he's encountered are "neat" and they "respect" each other. And he concluded: "They're the brightest and most capable of their classes, much less narrow-minded and narcissistic than the surgeons!"

And another student said she was off to a surgical residency, which I found odd as she had originally come to do an M.D. - Ph.D. program in biochemistry. Surgery, I said, is far removed from biochemistry. Of course, she said, but there are so many aspects of medicine that I had just never considered before. Certainly surgeons do mechanical things like cutting and sewing and prescribing medications, but their real talent is to function as "healers." "Why they're so positive in their outlook that they help patients to heal themselves!," she said.

Experiences with death and dying are also constants. "We see a patient die," said one student, "and the house officers say 'Let's get back to business.' Well, for me it's not business as usual. We're simply unprepared for what we see. Most of us are young and, if not naive, certainly inexperienced. People expect us to know more than we do, but we know less about human nature than your average bartender."

What about this case (of a woman who died earlier in the day)?, I asked. "Well, I'm sad. There was nothing we could do to save her. It's a feeling of helplessness. You imagine that you yourself are in that bed. It's frightening. It makes you wonder."

And this final effusion from a student who had just completed a medicine clerkship. "Our days are filled with conflicts. We're torn between being detached or close, sympathetic or hard-nosed. Or we find that we care deeply for a patient with terminal cancer and our only thought is to hope that they die soon. We're rubber bands. It's crazy. Trying to master it all kills us. Nobody learns it all, but the impression we get is that we're supposed to know everything. We work hard on the wards. We're up for nights at a time and our nerves are frayed. And then we have to deal with some jerk of an intern. We feel inadequate. We put up good facades, like we're all brilliant and confident. But we're really running scared. The house staff can easily bring the child in us to the surface. We're so easily wounded. So when we're on our own we act silly. We try to forget. That's why I live off campus with non-medical roommates. After a day at work, we play with the dog, sit around, bullshit, have dinner, burp out loud, and try not to take ourselves or life too seriously, at least for a few hours."

The changes, the transition, is also of interest and I'll just mention these briefly. The chairmen seem to have many and varied concerns. As one stated: "The numbers of clinical fellows has decreased. These bright, young physicians are not choosing to apply for fellowships which lead them into academic careers because they now perceive their mission as providing patient care. Academic medicine has become unattractive. They can't get grants. It's an unsettling time. Their perception is that they'd better be out in the community practicing rather than applying for grants and teaching posts. I'd like all our house staff to go into academic medicine, especially since too many are now in subspecialty private practice. What gets me is that we're adding to the problem of maldistribution of effort."

Another example of the changes: "We're too big. Back when I was first appointed to the faculty (in 1968) everybody attended everyone else's pharmacology and internal medicine lectures. Now internal medicine is a loose confederation of sections. We no longer understand each other's vocabulary. The nephrologists are more likely to go to conferences and seminars sponsored by the immunologists or physiologists than with someone next door, say in gastroenterology. And they're right to do this. The language of the basic sciences is useful to us. What they study is directly relevant to our clinical research. In the sixties everybody, and I mean everybody, would attend everyone else's presentations. New alliances have now been established. The common denominator is research, but as we seek these new affiliations and relationships we're losing something very important. We've become so exclusive that we can't speak to one another anymore."

Another transition, in the form of a reminiscence, is about a former chairman who attended everyone else's lectures and who personally taught physical diagnosis. "He never missed a single grand round. When visiting professors came, he'd always be in the first row and be the principal discussant. Now no chairman has time. We tell students that taking a history and physical is important, but we don't show them. We let the residents do it. Sure some residents can do it better than us older folk, but if we give up the responsibility how will they know we believe it to be important?"

"The problem," said another senior professor, "is that we're too busy. Oh, we're loyal to the School all right, but we're so busy. We talk about deadlines and this is what I usually hear: 'I'm revising a chapter; I'm off to San Francisco; the advisory committee meets in Washington, D.C.; I'll call from the Cosmos Club.' Half of the deans and chairmen of medical school departments are in airplanes every day of the week. How many of us ever say I'm going to take some time off to think how best to teach students how to listen to heart murmurs? Very few."

Or another observation from yet another chairman: "What I find myself desperate about is the business of running my department. I gave up lab research when I accepted the chairmanship because I didn't want to do things in a half-baked way. I'm involved with issues of public policy, teaching, editorial work, counseling, community work, serving as honest broker—all aspects of the job which I thoroughly enjoy. But what frustrates me most is simply making ends meet. In terms of per capita grant support, we're as successful as any department in the country. In terms of clinical activity we're doing as well as we should be. We bring in money from our teaching program at the affiliated hospitals and from foundations and private donors. We're really doing as much as we can and we're still scratching! When someone in my department gets in financial difficulty—say his grant is approved but not funded—there's no way I can bail him out. The School won't help; and neither will the University."

Now, lest you think it's all doom and gloom. There are some good signs. One of my favorite quotes is from James Paget, the eminent nineteenth century surgeon. In his essay "What Becomes of Medical Students," Paget wrote: "It is said that on entering the anatomical theatre for one of his introductory lectures Mr. John Abernathy looked round at the crowd of students and exclaimed, as if with painful doubt, 'God help you all! What will become of you!' "

Well, despite Abernathy and the Report of the Panel on the General Education of the Physician (GPEP) and the Report of the Graduate Medical Education National Advisory Committee (GMENAC) and the many monographs and essays describing the precarious state of affairs, the medical students whom I interviewed appeared optimistic about their future and agreed with the general conclusion that their education had prepared them for whatever lay ahead. They were of course concerned about regulation, the corporation, ethics, insurance, and malpractice, but I found most ready to leave with their ideals intact. Few actually "thirsted for fame," which many consider a true measure for success, but most, in Alan Gregg's words, appeared ready to do exactly "that which makes their heart leap."

Where will you be in ten years?, I asked. "Oh, I'll be a professor of medicine somewhere or other. My house will be near the university, within bicycling distance. I'll be engaged in clinical research, teaching, publishing and getting into arguments with my colleagues. Maybe my research will even be significant. I certainly hope so!"

So I have these interviews, and I have archival records as well, not to mention my own strategic position in the School as professor, observer, committee member, friend, colleague, crony, and critic.

Of course, I am occasionally troubled with my own role as a player and participant. But it is a very exciting time. So much is going on. There appears to be such uncertainty in the midst of change. And so many are willing to talk. They share, I think, because they have something to say, and also because they are worried, have self-doubts and deep reservations about modern medicine.

Walter Raleigh once quipped, that "He who follows truth too close to the heels, it may haply strike back and kick him in the teeth." So far my teeth are still intact, but in order to collect and record what I see, in order to do the interviews, I have to be right at the heels of the School, to see what is changing and what is changeless, what is new and what is anachronistic. The question is: Will I be successful in stopping time from running away?

Health Insurance for the Nation's Poor

UWE E. REINHARDT

For reasons deeply rooted in American social policy, there have always been millions of Americans without health insurance. Even in the heyday of the Great Society program, the mid-1970s, some 20 to 25 million Americans were uninsured at any point in time. In the meantime, that number has grown to somewhere between 30 and 40 million. In New York State, for example, close to 19 percent of the population under the age of sixty-five is now without health insurance.[1]

It is generally agreed that although over half of uninsured adults are actually employed, the bulk of them belong to low-income families, and that about one-third of all uninsured individuals are under the age of eighteen.[2] Over one-third of the uninsured can thus be said to have absolutely no choice whatsoever in the matter. Among uninsured adults, lack of income and of employer-provided insurance is likely to limit effective choice of insurance status as well.

Until the early 1980s, the American health system dealt with the uninsured roughly as follows: preventive care and care for mild to semiserious medical conditions was rationed to them on the basis of their own willingness and ability to pay. For truly serious conditions, however, the uninsured typically could obtain relief from their neighborhood hospital. There they were treated either by physicians employed by the hospital or by private practitioners who had agreed to donate a limited number of hours to the hospital's charity care in return for staff privileges. Because hospitals in those days were compensated by insured patients at rates retrospectively calculated to cover fully allocated costs, or at charges in excess of full costs, it mattered little when uninsured patients failed to pay their own bills. The hospital generally could recover the incremental cost of such "uncompensated care" from the insurance carriers of privately insured patients.[3] The attending physicians, too, typically were well enough compensated by paying patients to bear the opportunity cost of rendering some charity care.

Granted, this implicit social contract lacked the dignity and peace of mind other nations bestow on even their poorest citizens. Instead of entitling every citizen to technically available relief from acute pain and anxiety, as is customary elsewhere in the industrialized world, our system thrust indigent patients into the status of health care beggars forced in case of illness to cast about for some provider's *noblesse oblige*. Furthermore, it forced on hospitals the unwanted task of collecting hidden taxes through a pin-the-tail-on-the-donkey game by which the cost of indigent care was stuck willy-nilly onto the tail of paying patients (or their insurers and employers). Even so, it can probably be said that few if any Americans in those days died or suffered severely for want of critically needed medical care, if they really tried hard enough to procure it.

Whatever one may think of this social contract, it clearly is not sustainable under the system of competitively set prospective compensation to which this nation now aspires. If, in such an environment, the nation's haves do want to be their poor brethren's keepers in health care, then they must compensate providers explicitly for whatever care is rendered the poor. Continued reliance in that environment on some providers' *nobless oblige* would not only be indecent vis-a-vis these providers, whose hidden tax base vanishes under competitively set prospective prices, but it also would gamble with the health of the poor.

The task before American health policymakers, then, will be to replace the erstwhile provider-operated system of hidden taxes with an alternative set of taxes. A fundamental question to be explored is whether these new taxes will have to be hidden as well—that is, whether America's haves can be induced to be charitable towards the poor only if the price of that charity remains carefully camouflaged—or whether the financial support system for that purpose can be honest, explicit taxation. A second fundamental question is whether, at long last, all of America's poor ought to be granted some basic entitlements to health care. One example would be to fold the now uninsured poor into an insurance program that rewards providers in direct proportion to their effort at caring for the indigent and that grants the individual patient at least some

---

UWE E. REINHARDT is the James Madison Professor of Political Economy at Princeton University. Of German birth and Canadian upbringing, Reinhardt, now an American citizen, has both researched and experienced these various health systems. This Commentary expands on testimony he presented January 29, 1987 before the Senate Finance Subcommittee on Health.

Reprinted from the Spring 1987 issue of *Health Affairs*, Project HOPE, Millwood, VA.

veto power over the flow of compensation to the individual provider (for example, an expanded Medicaid program, albeit one with a compensation rate closer to the market). Institutional grants on the model of, say, the old Hill-Burton grants, fall short of this desideratum.

"Realistic Policy Parameters"

Wizened Washington veterans define a "viable policy option" as one that stands a healthy change of being legislated and implemented. Such a policy must stay within what are known as "realistic policy parameters." A policy parameter in this context can be thought of as a cultural, political, economic, or administrative constraint so immovable within the time frame of the proposed policy as to approximate a state of nature. Obviously, the rigidity of a policy parameter varies with the policy's time frame. Policies that are unthinkable within the next three years may become viable if one thinks of the early or mid-1990s.

Among the more important policy parameters that constrain public policy on indigent care are: (1) the national ethos into which such a policy would have to be implanted; (2) the legislative process that would implant it; and (3) the fiscal constraints it would have to observe.

National ethos. Americans love to luxuriate in the thought that theirs is a society with strong egalitarian traditions. There clearly is validity to this perception. Enterprising people the world over seek out the United States for a fairer chance for economic advancement than seems available at home. That the flow in reverse amounts to a trickle must mean something. But a tradition of offering healthy and visionary individuals greater economic opportunity than most other nations offer does not necessarily imply an egalitarian distribution of basic human services. On the contrary, if one firmly believes that there is an equal chance at economic advancement, then one is much more likely to favor an inegalitarian distribution of economic privilege, because ignorance and poverty are then viewed as products primarily of sloth, rather than of bad luck. Although in such a world the well-off may still be moved to grant the poor access to a limited set of basic human services, they also will righteously claim for themselves services of a superior quality and access to them on superior terms.

Surely it stretches the imagination to pretend that the old social contract described earlier begot an egalitarian distribution of health services. One's credulity on this point is stretched even further by the contemporary scene, which generates with some regularity tragic vignettes of the sort reported not long ago in *The Wall Street Journal* (8 March 1985).

> A thirty-two-year-old accident victim lies unconscious in a Florida hospital that has no neurosurgeon available. But two larger hospitals with neurosurgeons refuse to accept him upon learning that there is no guarantee his bill will be paid.
>
> A pediatrician in a Rock Hill, S.C., hospital wants to transfer a comatose three-year-old girl to a better-equipped urban medical center. But her family has no health insurance, and two hospitals refuse to take her in. A hospital 100 miles away finally accepts her.

Such vignettes would be quite inconceivable in neighboring Canada or in continental Europe, where 90 percent or more of all citizens share a universal health system accessible to all on equal terms, and only a small well-to-do minority of 5 percent or so chooses to opt out of that system.[4] The vignettes take on added poignancy when it is recalled that the American health sector actually is plagued by a surplus of both doctors and hospital beds, and that this country spends a higher proportion of its gross national product (GNP) on health care than does any other country in the world.[5] In fact, few, if any, countries in the industrialized world can rival the United States in the best parts of its health care system, and few, if any, match it or would want to match it in its worst.

These inegalitarian tendencies are, of course, not malicioius in intent. If basic human services were inexpensive and ubiquitous, the nation's well-to-do would undoubtedly be pleased to share them with the poor on equal terms. However, to guarantee access to human services on equal terms to rich and poor alike within any overall resource budget inevitably implies that the well-to-do forgo some of the quality, freedom of choice, and other superior amenities that a more inegalitarian distribution would offer them. In a society that views success and poverty as primarily the products of free choice rather than of mere fortune, the well-to-do are not easily moved to make that sacrifice.

In their unwillingness to make that sacrifice, society's haves need not rely soley on the seemingly selfish notion that in a meritocracy, inequality is equitable. That refusal can be defended also with appeals to the loftier goals of economic efficiency. The regulatory structures that must be erected to enforce the socialization of a commodity inevitably blunt the innovative edge of the system that produces the commodity. Thus it can be argued, as this nation's haves often do, that enforcement of greater equality in the distribution of human services would come at the expense of technical progress in the production and delivery of these services. It would be hard to quarrel with that argument on the basis of international comparisons.

A solid start in devising a viable health policy for the nation's poor would be to accept as a more or less permanent policy parameter that this country is unlikely ever to implement in practice the lofty egalitarian precepts it professes during public debates on health policy. In the past decade or so, these much-mouthed protestations have acted as a virtual stranglehold on the formation of health policy, and they may thereby actually have hurt the very persons they were intended to protect. "For our poor, nothing but the best," we have intoned for public consumption. But because the best is so expensive, we often ended up giving the poor nothing at all. An improvement, surely, would be an honest two-tiered health care system that would grant the poor dignified access to a humanely endowed bottom tier, and that would offer the better-off such privileges as, presumably, their status warrants.

It may be argued that this assessment of the nation's social ethic is unjustly harsh or, even if it were accurate, that no politician could ever openly embrace its implications in a nation so given to flattering self-imagery. But something surely must have been learned from the experience that, after decades of egalitarian incantations, there has actually been a substantial increase in the number of Americans who are exposed to serious financial risk from illness and to the prospect of being denied acutely needed care.

The legislative process. Even if a properly worded survey could convince one that the representative American voter actually does favor an egalitarian distribution of health care, after the full implications of such a policy have been explained to him or her, it does not follow that this voter's legislative representatives would be able to act on that revealed preference.[6] According to the late Chairman Mao Tse-tung, political power grows out of the barrel of a gun. Clearly, the adage does not apply to our system of governance. It might, however, if the word "gun" were replaced with "purse"–specifically, the purse of the moneyed interest groups who tend to dominate the formation of public policy in this country. In the domain of health policy, these interest groups have been the trade unions and the trade associations of health care providers and health insurers. While none of these groups is powerful enough by itself to dictate public health policy unilaterally, each of them has generally been powerful enough effectively to veto proposed legislation it abhors.

This implies that, to be viable at all, a health program for the nation's poor must not detract perceptibly from the bottom lines of health care providers and insurers, and that its chance for implementation is enhanced if it adds to these bottom lines. This policy parameter strikes one as virtually immutable even in the longer run.

Fiscal constraints. The United States is one of the richest countries on earth, and it routinely claims to be one of its most generous ones as well. Although it has one of the smallest public sectors in the industrialized world, there is room in its public budgets for grants to all strata of society, poor and rich alike.[7] Under normal circumstances, then, it might seem obscene in a country such as ours to respect budgetary constraints as a legitimate reasons for denying poor and suffering fellow Americans relief using readily available health care. But these are not normal times in history of American fiscal policy.

In the 1980s, American voters and those they elected to public office saw fit to replace an established federal policy of "spend, spend, and tax" with a policy that can only be described as "spend more, spend more, and borrow." This switch in fiscal policy was marketed to the public as an exercise in "supply-side economics" and "fiscal prudence" that would (1) shrink the federal sector, (2) reduce private consumption, (3) enhance private savings, and (4) redirect the resources released thereby to private capital formation in support of more rapid economic growth. In reality, the policy appears to have achieved precisely the opposite of these advertised effects, as many economists warned at the time.[8] The same can be inferred from the *Economic Report of the President* transmitted to the Congress in February 1986.[9] Although the experiment is being credited with having ushered in what is so far the third longest peacetime recovery since World War II (the second longest having been 1975-80), that recovery has been sluggish overall, and the policies driving it are indistinguishable from the demand-driven Keynesian policies they were meant to displace. Furthermore, unlike the earlier Keynesian expansions, this one has relied heavily on savings supplied by foreigners, leaving in its wake a large external debt to be serviced and amortized by future generations of Americans.

It is gradually being recognized by the public and by policymakers that the huge federal deficits unleashed by this dubious fiscal policy are having a deleterious impact on capital formation and thus on future economic growth in this country. The desperate search now for ways to reduce that deficit without explicitly raising taxes will make it unlikely that the federal government will make a significant contribution in the next several years to solving the problem posed by the uninsured other than, perhaps, to impose a series of hidden taxes upon business—for example, mandating employer-paid health insurance.

This particular constraint on national health policy, however, is unlikely to represent a permanent policy parameter. Toward the end of the decade, the federal government may well seek a more active role in defining basic rights in American health care. It may then even become acceptable once more to link proposed policy initiatives honestly and explicitly to supporting taxation.

Short-Run Policy Options

In the short run, significant initiatives in making health care more accessible to the poor will probably have to come at the state and local level. Furthermore, because an explicit linking of the word "tax" with any such initiatives at this time is likely to spell their demise—even at the state and local level—they will probably have to rely on carefully camouflaged pseudo-taxes for financial support.

A pseudo-tax is a government-mandated fiscal transfer among private individuals, institutions, or business firms that can be referred to by a name other than tax and does not flow through a public budget for which politicians can be held accountable. Government-mandated contributions by hospitals or insurance companies to statewide revenue pools for indigent care are classic examples of pseudo-taxes, as are government-mandated, employer-paid health insurance coverage and government-mandated, uncompensated provision of health care by doctors and hospitals. All of these coerced transfers go by less alarming names, but they are taxes, pure and simple.

The political appeal of pseudo-taxes lies in their ability to spare politicians fiscal accountability and to allow them effectively to raise taxes while posturing as fiscal conservatives dedicated to cutting explicit tax rates. With reliance on pseudo-taxes, one can make the public sector appear to be shrinking while, in fact, the government's regulatory and confiscatory tentacles reach ever further into the private sector.

Although one may have misgivings over the use of pseudo-taxes in a democracy, one should not overlook their social virtue. from the viewpoint of policy analysts and policymakers genuinely concerned with the plight of the uninsured poor, for example, they may represent on occasion—such as the present time—the only viable means of bringing relief to the poor in the short run. One should not, however, overlook the obvious drawbacks of pseudo-taxes—that they are invariably unfair or inefficient.

For example, a law that mandates all private business firms to provide health insurance coverage to all employees is, in effect, a payroll tax in disguise. It may be argued, of course, that many civic-minded business firms have already voluntarily shouldered that tax, and that it is only fair to force other firms onto the same level playing field. But business firms that provide health insurance to their employees are probably motivated less by civic virtue than by exigencies of the particular labor markets in which they procure personnel and by the fact that, under current tax laws, employer-paid insurance premiums are a tax-deductible payroll expense but not taxable income to the employee.

To be sure, a firm that cannot shift the cost of mandated health insurance forward to customers could perhaps shift it backward to employees by means of commensurately reduced cash wages. But even if the labor market permitted this backward shifting—and it might not—this coerced reduction in wages would then constitute a potentially quite regressive tax upon employees. For poor and near-poor employees, such a tax might be devastating.[10]

Finally, if a health program for the poor relies on a hodgepodge of pseudo-taxes funneled through a hodgepodge of revenue pools to sundry providers, one may ultimately end up with an administratively complex and expensive Rube Goldberg contraption that may not even be capable of guaranteeing that no American falls through the cracks of such a contraption. Furthermore, if such a system relies heavily on institutional grants to numerous providers, it may not be able to lift the poor out of the status of health care beggars to which they have been relegated traditionally.[11]

Policy Options In The Longer Run

It may turn out that a crazy quilt of numerous state and local programs for indigent care is all this nation will ever seek. One advantage of such an approach is that it keeps decisions on policy and resource allocation at the grass roots and, moreover, provides a giant national laboratory with a myriad of experiments going on simultaneously. A danger of this approach, however, is that it exposes local governments to economic risks beyond their control. Some states more than others serve as entry points for legal and illegal immigration of extended families and may thereby be unduly and unfairly burdened with a disproportionate welfare load. The budgets of some states more than those of others are sensitive to international economic currents or to national economic policies totally beyond these states' control—for example, to the exchange value of the dollar, to trade restrictions, or to oil prices. Finally, some states may be inclined to export the social pathos in their midst through deliberately lean human services programs designed to drive the indigent toward more generous states. There may even be competition in this export of misery, because lean welfare budgets imply lower tax rates that, in turn, attract business to a state.

In the last analysis, Americans must ask themselves this fundamental question: Should an American citizen in, say, New England be at all concerned with what health care is or is not being given to a suffering American infant or adult in, say, Texas or Florida, and vice versa? If the answer to this question is "no," then, with all respect, one must judge this country to be less of a nation than is ritually professed on the Fourth of July. An affirmative answer, on the other hand, would seem to imply direct federal involvement in defining and financing the floor below which no American is permitted to sink in health care.

A scenario for care of the poor. If sometime in the early 1990s the American people decided to practice nationhood in health care for all Americans, young and old, the following sketch may provide the outline of a politically viable, fiscally affordable, and potentially quite humane national health program for the poor.

There should exist a federal fail-safe health insurance program that automatically covers any American who does not have adequate private health insurance coverage. Persons covered by the federal fail-safe program would not necessarily enjoy the same degree of freedom of choice among providers enjoyed by patients who elect and can afford private health insurance coverage. Wherever feasible, patients covered by the federal fail-safe program would have to accept nonemergency care from their choice of a limited number of health maintenance organizations (HMOs) in their locality. These HMOs would bid competitively for the right to serve federally insured patients. The quality of their care would be subject to external monitoring. By voting with their feet, patients could, of course, exert control over that quality as well.

Persons covered by the federal fail-safe program would be entitled to procure care in emergencies from the nearest provider. No health care provider in the United States would be asked to render such care without adequate compensation. This compensation should be periodically negotiated ahead of time with appropriate regional or national associations of providers. The compensation need not be equal to these providers' desired level of compensation, nor even to their customary ones, but it should be high enough that no provider would suffer a financial loss from having rendered emergency care to patients without private health insurance.

Finally, the federal program would be financed based on ability to pay. One approach might be to include on Internal Revenue Service Form 1040 line labeled "Health

Insurance Tax" into which persons without evidence of adequate private health insurance would enter *x* percent of their adjusted gross income, where *x* might rise progressively with adjusted gross income to encourage reliance on private coverage. Persons with adequate private health insurance would not have to pay *x* percent of their adjusted gross income, but instead a much smaller flat *y* percent specifically earmarked for the federal fail-safe program. Medicaid would be absorbed by the proposed federal fail-safe program.

Advantages. One advantage of this proposal, within the American context, is that it does not call for a full-fledged national health insurance program. If the tax rate on adjusted gross income (*x*) were appropriately calibrated, the bulk of Americans could be induced to seek coverage from private insurers. Furthermore, the private insurance industry would be free to compete for the coverage of federally insured patients through insurer-operated HMOs. As a second virtue, the program would free doctors and hospitals from the increasingly vexing moral dilemma of providing indigent care in a price-competitive market. The market might even put added funds into their pockets.

In short, then, the program could be designed to pay due respect to one of the most important policy parameters discussed earlier: the bottom lines of providers and private insurers. Furthermore, the program would not ram egalitarianism down the throat of a people that appears, at least tacitly, to reject it in the distribution of basic human services.

Ways to handle the cost. The budgetary cost of the program would not necessarily have to be borne fully by the earmarked income tax (tax rates *x* or *y* on adjusted gross income). Additional support might come from sundry excise taxes—for example, from additional levies on the consumption of alcohol and tobacco or, with good justification, from a health care tax on gasoline. [12] Furthermore, some additions to the federal tax base could be achieved if the government eliminated one of the major tax shelters remaining in the tax code: the exlusion of employer-paid health insurance premiums from taxable income. Although the elimination of this tax shelter would violate a crucial policy parameter—it might make inroads into the bottom line of private health insurers and it would be strongly opposed by trade unions—economists have long argued that the current tax subsidy to private health insurance is neither equitable nor economically efficient. Surely one may question the ethical precepts of a nation that subsidizes with federal tax breaks the purchase of health insurance even for upper-income business executives, all the while justifying with appeals to budgetary constraints the exclusion of millions of poor families from basic health insurance coverage.

The role of Medicare. Whether or not the Medicare program ought to be absorbed into the proposed scheme is a question too complex for the limits of this Commentary. At one extreme, it may be argued that Medicare in its present form represents a promise never to be broken. On the other hand, it can also be argued that the program is now much too generous to relatively well-to-do aged and much too harsh on relatively poor aged. Furthermore, within tightly controlled public budgets, the relative generosity of the Medicare program overall indirectly comes at the expense of desperately poor young Americans.

At the very least, an ethically defensible case can be made for redistributing the cost of illness within the cohort of the aged by fusing Medicare's parts A and B, by relating the aged's premium contribution for the fused program to their income and wealth, and by using the added premiums to reduce for the poor aged the burden of cost sharing at point of service. [13]

Concluding Observations

The preceding proposal of a two-tiered, or really multitiered, American health system is based on the explicit assumption that this nation is unlikely ever to adopt a full-fledged, comprehensive, and universal national health insurance program, because the redistributive and regulatory implications of such a program are incompatible with the preferences of the nation's now dominant middle- and upper-income classes and with the economic interest of providers and health insurers. Should such a program nevertheless come about one day, it would probably come at the behest of a coalition comprising health care providers and a large corps of middle-aged, semi-impoverished, and politically articulate "baby boomers."

If the American business community ever bestirred itself to exercise fully the market power it potentially has in the emerging buyer's market for health care, the nation's physicians and hospitals may yet come to appreciate that the free market so many of them dreamed of in the 1970s is actually a tortuous instrument designed to visit on them daily uncertainty, step-by-step monitoring of their clinical decisions by external lay boards, and morally vexing tradeoffs between economic security and their professional code fo ethics. From that vantage point, the less directly controlled, clinically more unfettered, and financially more secure setting in which, say, Canadian physicians and hospitals ply their trade under that neighbor's national health insurance system may gain respectability among American providers.

As has been shown in an illuminating paper by Levy and Michel, the disposable income after taxes and after housing of the baby boom cohort is quite meager relative to that of their parents, and also relative to that of the now aged. [15] Sometime in the later 1990s, when the first baby boomers will have turned fifty, many of them may well conclude that for them the much-vaunted American Dream remained just that, a dream. In one of those common triumphs of self-interest over ideology, they may come to appreciate the virtue of socialized commodities and join whatever group is then lobbying for universal national health insurance. [16]

REFERENCES

1. United Hospital Fund, President's Letter (December 1986).
2. An informative survey of data related to the uninsured is offered by Margaret B. Sulvetta and Katherine Swartz, The Uninsured and Uncompensated Care: A Chartbook (Washington, DC: National Health Policy Forum, George Washington University, June 1986).
3. Curiously, the federal government's Medicare program refused to have the cost of indigent care shifted to its patients.
4. The Canadian national health insurance and health care delivery system embraces virtually the entire population. In West Germany, only about seven percent of the population is insured outside the statutory insurance system. Even in England, whose National Health Service is very lean, only about five percent of all health care is delivered through a parallel private insurance and delivery system.
5. In 1983, The United States spent 10.8 percent of its gross domestic product (GDP) on health care. The next highest percentages were 9.6 percent in Sweden, 9.3 percent in France, 8.5 percent in Canada, and 8.2 percent in West Germany. See Daniel R. Waldo, Katherine R. Levit, and Helen Lazenby, "National Health Expenditures, 1985," Health Care Financing Review (Fall 1986):5.
6. In such a survey, the question, "Do you believe all Americans should have access to one-tiered health system?" would have to be accompanied by the questions, "Would you be willing to accept the regulation such a system implies?" and "Would you be willing to pay added taxes for such a system?"
7. See Tax Foundation, Inc., Facts and Figures on Government Finance, 23rd ed (Washington, DC, 1986), Table A33:36. According to the foundation, only Japan had a smaller ratio of total tax revenues of all government levels to gross domestic product in 1982. In most of the industrialized world that ratio is far in excess of the U.S. ratio.
8. A genuine supply-side policy might have begun with the abolition of the corporate income tax, rather than with across-the-board income tax cuts, and with a more deliberate shift toward a consumption tax—for example, by exempting to the extent possible saved income from taxation.
9. For example, according to data appended to the Economic Report of the President (Washington, DC: US Government Printing Office, February 1986), (1) total federal spending increased from 20.7 percent of gross national product (GNP) in 1979 to close to 24.6 percent in 1985 (Table B-76); (2) private consumption increased from 62 percent of GNP in 1979 to 65 percent in 1985 (Table B-1); (3) gross private domestic savings decreased from 18.3 percent of GNP in 1979 to 14 percent in 1985 (Table B-27); (4) gross private domestic investment decreased from 18.1 percent of GNP in 1979 to 16.7 percent in 1985 (Table B-27); and (5) the federal debt more than doubled over that time to almost $2 trillion (Table B-73). The figures for GNP come from Table B-1.
10. These arguments are, of course, not meant to naysay governmental efforts facilitating—perhaps through large insurance cooperatives—the voluntary provision of employer-paid health insurance to employees, especially by small business firms who would otherwise find such coverage inaccessible.
11. If such grants were concentrated in a few institutions with a clear mandate to serve the indigent unquestioningly, they might be less burdensome on the poor.
12. Vehicular traffic is apt to contribute to the load of what is now known as "uncompensated care." Furthermore, the pollutants omitted by vehicular traffic are known to have deleterious effects on health. A health tax on gasoline could thus be defended as a way of internalizing to the users of gasoline a so-called "spillover cost," that is, a cost these users cause and others are forced to bear.
13. Such a proposal has been made by Karen Davis and Diane Rowland in Medicare Policy (Baltimore, MD: The Johns Hopkins Press, 1986), 84-85.
14. The "baby boom" cohort is generally understood to comprise persons born during the time span from 1946 to 1962.
15. Frank Levy and Richard Michel, "An Economic Bust for the Baby Boom," Challenge (March/April 1986).
16. The political dynamics of the "socialization of commodities" have been lucidly explored by Dan Usher in "The Welfare Economics of the Socialization of Commodities," Journal of Public Economics 8 (1978):151-168.

Entirely Smoke-Free Health Facilities

An Editorial Note

Of all behavioral risk factors that adversely affect health, tobacco use is the leading cause of premature mortality.[1] The adverse health consequences of involuntary smoking are also well documented and support the need for smoke-free working environments.[2] Furthermore, it is logical for health facilities to take the lead both in making nonsmoking the social norm and in reducing opportunities for smoking cigarettes.[1] However, although smoking restrictions are generally more common in hospitals than in other worksites, survey data indicate that smoking is still widely permitted in patient-care areas. Relatively few hospitals are entirely smoke-free.[2] IHS's experience demonstrates that 100% smoke-free health facilities are achievable, and other facilities are encouraged to set similar standards.*

In addition to protecting nonsmokers from exposure to environmental tobacco smoke, smoking restrictions may also encourage smokers to quit or reduce their smoking. Studies utilizing control groups and based on consumption data collected before and after policy implementation suggest that worksite smoking policies are followed by a decrease in smokers' cigarette consumption at work.[2]

By eliminating smoking in all of its health facilities, IHS has launched a strong initiative to reduce the burden of morbidity and mortality resulting from tobacco use among American Indians and Alaskan Natives. On May 5, 1987, following the IHS initiative, the Department of Health and Human Services (DHHS) announced a new policy to establish a smoke-free environment in all DHHS buildings. This policy will affect approximately 120,000 DHHS employees nationwide.

REFERENCES

1. Foege WH, Amler RW, White CC. Closing the gap: report of the Carter Center health policy consultation. JAMA 1985, 254:1355-8.
2. CDC. The health consequences of involuntary smoking: a report of the Surgeon General. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, 1986.

*The University of Minnesota has published a guide for establishing smoke-free health care facilities.

—*Morbidity and Mortality Weekly Report*, June 12, 1987.

Introduction to the Management of Immunosuppression

AMA COUNCIL ON SCIENTIFIC AFFAIRS

Advances in solid-organ allograft have depended in great measure on the development of improved means of suppressing the immune system of the recipient. This article presents an overview of the major forms of immunosupression used in organ transplantation, specifically corticosteroids, azathioprine, antilymphocyte and antithymocyte globulin and cyclosporine, monoclonal antibody to the T3 receptor on lymphocytes, and blood transfusions.

Currently, the major forms of immunosuppression for solid-organ allografts are corticosteroids, azathioprine, antilymphocyte and antithymocyte globulin, cyclosporine, monoclonal antibody (OKT3) to the T3 receptor on lymphocytes, and blood transfusions. Less frequently used, adjunctive, or investigational forms of immunosuppression include anticoagulants, antiplatelet drugs, defibrination, local graft irradiation, total lymphoid irradiation, plasmapheresis, a variety of methods for lymphoid depletion such as splenectomy, leukapheresis, and thoracic duct drainage, and monoclonal antibodies to other lymphocyte cell surface markers such as T12 and the receptor for interleukin 2 (IL-2). Because the immunosuppressants used for solid-organ allografts have had their introduction or longest experience in renal transplantation, the present description will draw primarily on work in that area. Blood transfusions warrant special mention because they were used for many years in patients undergoing renal dialysis without realization of their immunosuppressant capability. However, in recent years, blood transfusions have become the most widely used form of *pre*transplant immunosuppression and have been given liberally to the vast majority of patients awaiting renal transplantation. A variety of other agents and approaches have also been usd over the years for prophylaxis and treatment of rejection.[1-4]

Greater potency and specificity and less toxicity have been the objectives in developing immunosuppressive therapies. Nevertheless, the standard immunosuppressants used in renal allotransplantation still have substantial nonspecificity. The major advances in their use have been to administer them in lower doses, to use them as combination therapy (also in low doses), to give high-dose antirejection therapy for shorter periods, and to treat rejection only when there is a low-risk/high-benefit potential.[5-8] The more prudent management of immunosuppressants, the use of prophylactic antibiotics, improvements in surgical techniques, and the prompt recognition and treatment of complications resulted first in an improvement in patient survival and subsequently an improvement in allograft survival.[5-10] The introduction of a more potent form of antilymphocyte globulin,[11] liberal and innovative transfusion policies,[12-15] as well as the availability of cyclosporine[16-20] have accelerated the improvement in allograft success rates.

The abbreviated discussions that follow are not intended to be detailed protocols for the use of these agents nor complete reviews of their indications and side effects.

Corticosteroids

Corticosteroids are used both for prophylaxis and treatment of rejection. For prophylaxis, 1 g of intravenous (IV) methylprednisolone is usually started the day before living-related and the day of cadaver renal transplants. Oral prednisone therapy is then initiated prophylactically in one of three general ways: (1) 2 mg/kg, with a tapering dose schedule that decreases to approximately 10 to 15 mg in uncomplicated cases within a few months,[4] (2) an initial ultrafast tapering schedule, from 200 to 20 mg over six days, (T.E. Starzl, M.D., Ph.D, written communication, November 1985); and (3) low-dose oral prednisone in the range of 20 to 30 mg/d for the first month.[7] Azathioprine, antilymphocyte globulin, and cyclosporine are used singly or in various combinations with prednisone.

For the treatment of rejection episodes, both high-dose oral prednisone and IV methylprednisolone have found rather widespread use.[4,21] The oral prednisone dose for

---

From the Council on Scientific Affairs, American Medical Association, Chicago.

Informational report to the American Medical Association House of Delegates 1986 Annual Meeting.

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all the facts and circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and patterns of practice evolve. This report reflects the views of the scientific literature as of June 1986.

Reprint requests to Council on Scientific Affairs, American Medical Association, 535 N Dearborn St, Chicago, IL 60610 (William R. Hendee, PhD).

rejection reverts back to the 2- to 3-mg/kg range with a rapid taper, as was used immediately after transplantation. On the other hand, IV methylprednisolone is given in a dosage range of 1 g/d for one to five days (usually three days) with skip periods between courses and with a limited total dose that is usually between 3 and 10 g.[4,21] The efficacy of IV methylprednisolone in reversing first allograft rejections has been reported to be in the range of 72% to 83%.[4,22] It has its greatest effectiveness in those rejections characterized by infiltrates of large lymphocytes in the renal interstitium and, like other immunosuppressants, may be more of a risk than a benefit in rejections dominated by interstitial hemorrhage, occlusive vascular or thrombotic lesions, interstitial fibrosis, or foci of cortical necrosis.[23] Oral prednisone administration, appears to be necessary as continuing maintenance therapy in the vast majority of renal allograft recipients, although careful selection of some recipients having exceptionally good histocompatibility matching with their donors may exempt them from this requirement.[24,25]

The side effects attributable to corticosteroids are numerous and include the following: increased susceptibility to infection, possible increased susceptibility to infection, possible increased susceptibility to neoplasia in conjunction with other immunosuppressants, poor wound healing, easy bruising, acne, cushingoid appearance, excessive weight gain, psychosis, hyperlipidemia, hypertension, coronary atherosclerosis, aseptic necrosis, osteoporosis, impaired linear bone growth in children, myopathy, posterior subcapsular cataracts, and de novo insulin-dependent diabetes mellitus.[26-28] Certain unusual and serious toxic reactions to bolus IV methylprednisolone therapy include fatal ventricular arrhythmias and anaphylaxis as well as hyperosmotic nonketotic coma.[29-31] Despite these potential complications, experienced clinical management of corticosteroids in transplant recipients, particularly in the last five to ten years, has led to substantially reduced morbidity and mortality from this class of agent.

The mechanism of action of corticosteroids as an immunosuppressant was thought to be primarily through its anti-inflammatory action, with later information indicating that it caused sequestration of circulating lymphocytes and monocytes in lymphoid tissue, particularly the bone marrow, and more recent evidence showing that it blocked the production of interleukin 1 (IL-1) and IL-2.[32-34] Interleukin 1 is believed to provide a second signal for activation of helper T lymphocytes in the presence of antigen.[35] Interleukin 2, produced by helper T lymphocytes, is both a growth factor for helper T lymphocytes and a second signal for activation of cytotoxic T lymphocytes in the presence of antigen.[35] Because IL-1 is an endogenous pyrogen, one can understand how high doses of corticosteroids can suppress febrile responses.

Azathioprine

Azathioprine is metabolized in the liver to 6-mercaptopurine, which disrupts normal purine metabolism and consequently interferes with DNA synthesis and cell proliferation.[36] It has been widely used in prophylactic fashion, with an initial pretransplantation dose in the range of 3 to 5 mg/kg and then a maintenance level usually in the lower half of a range from 1 to 2 mg/kg. The maintenance dose will be sharply reduced or administration of the drug discontinued altogether in the presence of severe infection, malignancy, or white blood cell counts less than 3,500/mm^3 ($<3.5 \times 10^9$/L). Because allopurinol inhibits the enzyme xanthine oxidase, which is responsible for the further degradation of 6-mercaptopurine to 6-thiouric acid, the dose of azathioprine must be reduced when allopurinol is used concurrently.[37] Azathioprine shares two major side effects with corticosteroids, namely, increasing the susceptibility to infection and neoplasia, but has leukopenia as its predominant complication. Less commonly, it produces alopecia, stomatitis, hepatitis, thrombocytopenia, and macrocytic anemia.[38]

Antilymphocyte and Antithymocyte Globulin

Antilymphocyte and antithymocyte globulin have been used most commonly in a prophylactic fashion for the first few weeks after renal transplantation, in a dosage range that may vary according to the potency of the batch of reagent. This antibody, which is produced in horses, goats, or rabbits by immunization with cultured human lymphoblasts or spleen cells (antilymphocyte globulin) or thymocytes (antithymocyte globulin), acts by opsonizing lymphocytes (coating their surface) and causing their sequestration in the liver and spleen.[11] It was used initially in the 1960s as a less purified intramuscular preparation, but has been rendered more effective and less toxic in its current purified IgG IV form. Transplantation success rates with antilymphocyte globulin used prophylactically in combination with other agents have been among the highest reported with any immunosuppressant protocol.[39,40] Antilymphocyte and antithymocyte globulin have also been used quite effectively without any increase in steroid dose to treat first allograft rejections, with success rates for reversing rejection in the range of 75% to 100%.[22,41,42] Side effects from this agent include the major ones shared by azathioprine and corticosteroids, namely, an increased susceptibility to infection and neoplasia, as well as fever, chills, phlebitis, thrombocytopenia, leukopenia, serum sickness, nephritis, and anaphylaxis.[43,44]

Cyclosporine

Cyclosporine, a product of the soil fungi *Tolypocladium inflatum* Gams and *Cylindrocarpum lucidum* Booth, was approved by the Food and Drug Administration for use in renal transplantation in November 1983 and has had excellent recent clinical reviews.[20,45] It is a lipophilic agent that is usually administered orally or IV at approximately one-third to one-fourth the oral dose.[45] Its absorption by the distal ileal lymphatics may change with time in the same patient; typically, it has a peak serum level at three to four hours, a mean bio-availability of 34%, and a terminal half-life of 19 hours.[20,45] It is metabolized in the liver, excreted by the biliary system, and subjected to enterohepatic recirculation, which involves primarily the metabolites detected by the radio-immunoassay technique.[20,45,46] It appears to act primarilly by blocking in T lymphocytes the production of the lymphokine IL-2 through inhibition of its messenger RNA.[47] The activation of alloantigen-stimulated cytotoxic T lymphocytes and the proliferation of helper T lymphocytes, both involved in allograft rejection, depend on the availability of IL-2.[35,45] Cyclosporine has typically been used in a prophylactic fashion in a dosage range that steadily decreased from the initial level of 25 mg/kg[16] to approximately 10 to 20 mg/kg.[17-20,48,49] Most recently, triple-drug protocols utilizing low doses of prednisone and azathioprine have employed even lower dosages of cyclosporine, in the range of 6 mg/kg/d.[50,51]

Nephrotoxicity is the major side effect of cyclosporine and appears as four basic syndromes: (1) delayed renal allograft function, (2) acute reversible renal dysfunction, (3) acute arteriolopathy, and (4) interstitial fibrosis.[52,53] Although whole-blood monitoring by high-performance liquid chromatography methods may indicate the need for dosage reduction, neither high-performance liquid chromatography nor radioimmunoassay monitoring has eliminated nephrotoxicity. The inhibition of prostacyclin-stimulating factor by cyclosporine and the consequent reduced production of the vasodilatory prostacyclin are under investigation as the primary mediators of cyclosporine nephrotoxicity, which may occur even at "subtherapeutic" levels. Delayed renal allograft function appears to be accentuated in the presence of graft ischemia, as might be apparent in cadaver kidneys,[19] and physicians in many transplantation centers avoid its use until the period of acute tubular necrosis has resolved. During the intial period of acute tubular necrosis, antilymphocyte globulin and prednisone are used in place of cyclosporine, with a subsequent switchover to cyclosporine when a diuresis has ensued and the serum creatinine level has fallen blow approximately 4 mg/dL (354 μmol/L)[49] Acute reversible renal dysfunction is generally associated with cyclosporine levels greater than 200 mg/dL. The level can be increased by drugs such as ketoconazole, cimetidine, erythromycin, and high-dose methylprednisolone.[20,45] The concurrent use of other potentially nephrotoxic drugs, such as acyclovir sodium, amphotericin B, aminoglycosides, vancomycin hydrochloride, and nonsteroidal anti-inflammatory drugs, may also accentuate cyclosporine nephrotoxicity.[20,45] On the other hand, drugs such as phenytoin, rifampin, and IV trimethoprim-sulfamethoxazole can decrease cyclosporine blood levels and lead to rejection.[20,45] Acute cyclosporine nephrotoxicity decreases urine volume, renal blood flow, glomerular filtration rate, the ability to dilute urine maximally, fractional excretion of sodium and potassium, and serum magnesium and bicarbonate levels; it increases renal vascular resistance, serum potassium and uric acid levels, albuminuria, and type IV renal tubular acidosis.[52,53] Permanent and severe allograft damage from cyclosporine may occur within the first few weeks after transplantation in the form of an arteriolopathy or hemolytic-uremic syndrome, and months to years later as interstitial fibrosis.[52,53] In addition to its nephrotoxicity, other side effects attributable to cyclosporine include increased susceptibility to infection and neoplasia, especially in combination with antilymphocyte globulin, hypertension, hepatotoxicity, gynecomastia, tremor, seizures, paresthesias, gingival hyperplasia, hypertrichosis, cramps, diarrhea, nausea, vomiting, and flushing.[20,45] Although a recurrent clinical dilemma in patients treated with cyclosporine is determining whether a rising or elevated serum creatinine level represents rejection or cyclosporine nephrotoxicity, nephrotoxicity is most often the cuase of such worsening renal function beyond the first month after transplantation.[20,45] Because of this concern, certain immunosuppression protocols call for either a changeover to azathioprine within the first year after transplantation or the use of much lower initial cyclosporine doses in combination with low doses of prednisone and azathioprine.[49-51] Numerous transplantation groups have reported substantial improvement in cadaver allograft success rates with cyclosporine.[17-20,40,48-51] At present, probably every transplantation center in the United States, Canada, and Europe is using it to some degree.

Monoclonal Antibodies

Following the development of monoclonal antibody technology that gained Kohler and Milstein[54] the Nobel Prize for Medicine in 1984, numerous applications were made of this technique, which created antibodies that would react exclusively with a specific, but not always unique, portion of an entire antigen molecule, an epitope. One such application of this technology was the production of monoclonal antibodies to specific T-lymphocyte markers, such as the T3 antigen-receptor complex. This approach permitted the inactivation of just a subset of lymphocytes rather than an entire population, as occurs with the much more broadly reacting antilymphocyte globulin. The mechanism of action of monoclonal antibody to the T3 complex (OKT3) is believed to involve one or more of the following: opsonizing circulating T lymphocytes that are then removed by the reticuloendothelial cells, modulating the T3-antigen recognition complex from the surface of T cells, and possibly blocking the function of sessile killer cells in the transplanted organ. The OKT3 monoclonal antibody has recently been reported in a collaborative study to reverse 94% of acute rejections, thus fulfilling some of its early promise.[55,56] After treatment of a rejection with OKT3, rebound rejections occurred in approximately 55% of patients given maintenance therapy with prednisone and azathioprine, but in only half that number being given prednisone and cyclosporine.[57,58] The side effects associated with OKT3 therapy have included high temperature, shaking chills, headache, tremor, seizure, nausea, vomiting, diarrhea, thrombocytopenia, leukopenia, arthritis, allograft arterial and venous thrombosis, increased susceptibility to infection, dyspnea, wheezing, chest pain, pulmonary edema, and hypoxic death.[55-58] The "physiologic response" to the initial one to three doses that accompanies the disappearance of T3-bearing lymphocytes from the circulation resembles an anaphylactoid reaction and necessitates pretreatment and careful monitoring.[56-58] Sensitization to this murine monoclonal antibody may prevent its reuse.

Irradiation, Thoracic Duct Drainage, Anticoagulation, and Pheresis

Local graft irradiation, total lymphoid irradiation, and thoracic duct drainage have been employed as prophylaxis against early rejection.[59-61] Local irradiation to the allograft, plasmapheresis, leukapheresis, and heparin sodium have also been used to treat ongoing rejection.[62-69] Local graft irradiation may have an adverse effect on graft function in the presence of tubular damage and did not improve the response to methylprednislone used for acute rejection.[59,62] Although rarely used today, thoracic duct drainage has been used for 21 to 115 days after transplantation and for 30 to 56 days before transplantation in highly sensitized recipients.[61] Total lymphoid irradiation appears to have the potential for high success rates in selected patients.[60]

Treatment of rejections refractory to steroid or antilymphocyte globulin therapy with plasmapheresis and leukapheresis has been controversial and only modestly successful at best.[63-66] Heparin and dipyridamole have been used mostly as adjunctive rejection therapy in an attempt to improve renal blood flow and lessen thrombotic lesions in rejected allografts.[67-69] Ancrod, derived from the Malayan pit viper, has been used to defibrinate a patient to reverse a hyperacute type of rejection.[70] Cyclosporine has had only limited success in reversing acute steroid-resistant rejections, tends to act more slowly than IV methylprednisolone or antilymphocyte globulin in reversing some acute rejections, and has been ineffective in chronic rejections.[71]

Blood Transfusions

Blood transfusions exert an impressive though still enigmatic immunosuppressive effect that was first noted in recipients of cadaver allografts.[12] The effect is detectable with just a single transfusion and appears to peak at about 14 transfusioons.[72] Tranfusions may act partially by a selection process: development of HLA antibodies in response to the incompatible leukocytes in the transfusions would prevent a patient from receiving a kidney carrying the same incompatible HLA because he would exhibit a positive crossmatch with the donor's lymphocytes. Conversely, a kidney donor that would not elicit a positive crossmatch with a recipient's serum may be more likely to have a greater number of shared or compatible HLA with the sensitized recipients. However, more likely mechanisms for the transfusion immunosuppressant effect are the development of suppressor T lymphocytes, anti-idiotype antibodies, and possible clonal deletion.[73-74]

Donor-specific transfusions without[13] or with immunosuppression,[15] as well as third-party transfusions,[14] have improved success rates in mismatched living-related transplant recipients who were highly reactive to their donors in mixed lymphocyte cultures. However, the use of cyclosporine for living-related donor-recipient pairs may render this approach less attractive.[75] Side effects of transfusion are well known and include fever, chills, hemolysis, sensitization to red blood cell, leukocyte, and platelet antigens, hemosiderosis, and transmission of infectious agents, especially hepatitis and human T-cell lymphotropic virus type III.

Pretransplant splenectomy was reported to provide about a 14% improvementin two-year cadaver allograft survivals, but extended follow-up of those patients has shown a worsening result in splenectomized recipients.[76,77] Consequently, routine pretransplant splenectomy has generally been abandoned. Even leukopenia as an indication for splenectomy has virtually vanished because azathioprine, with its propensity for causing leukopenia, can be replaced by cyclosporine.

In subsequent articles, specific new modes of immunosuppression and associated complications will be presented in more detail. Related transplantation topics, such as organ procurement, will also be discussed.

REFERENCES

1. Starzl TW: Experience in Renal Transplantation. Philadelphia, WB Saunders Co, 1964.
2. Rapaport FT, Dausset J (eds): Human Transplantation. New York, Grune & Stratton, 1968.
3. Najarian JS, Simmons RL (eds): Transplantation. Philadelphia, Lea & Febiger, 1972.
4. Salaman JR: Nonspecific Immunosuppression in Kidney Transplantation Principles and Practice, Morris PJ (ed). New York, Grune & Stratton, 1979, pp 163-182.
5. Tilney NL, Strom TB, Vineyard GB, et al: Factors contributing to the declining mortality rate in renal transplantation. N Engl J Med 1978, 299:1321-1325.
6. Vincenti F, Amend W, Feduska NJ, et al: Improved outcome following renal transplantation with reduction in the immunosuppression therapy for rejection episodes. Am J Med 1980, 69:107-112.
7. McGeown MG, Douglas JF, Brown WA, et al: Advantages of low-dose steroid from the day after renal transplantation. Transplantation 1980, 29:287-289.
8. Strom TB: The improving utility of renal transplantation in the management of end-stage renal disease. Am J Med 1982, 73:105-124.
9. Advisory Committee to the Renal Transplant Registry: The 13th report of the Human Renal Transplant Registry. Transpl Proc 1977, 9:9-26.
10. Standards Committee of the American Society of Transplant Surgeons: Current results and expectations of renal transplantation. JAMA 1981, 246:1330-1331.
11. Najarian JS, Simmons RL, Condie RM, et al: Seven years experience with antilymphoblast globulin for renal transplantation from cadaver donors. Ann Surg 1976, 184:352-368.
12. Opelz G, Terasaki PI: Dominant effect of transfusions on kidney graft survival. Transplantation 1980, 29:153-158.

13. Salvatierra O Jr, Vincenti F, Amend W, et al: Deliberate donor specific blood transfusions prior to living-related renal transplantation: A new approach. Ann Surg 1980, 192:543-552.
14. Pfaff WM, Fermell RS, Howard RJ, et al: Planned random donor blood transfusion in preparation for transplantation. Transplantation 1984, 38:701-703.
15. Anderson CB, Sicard GA, Etheredge EE: Pretreatment of renal allograft recipients with azathioprine and donor-specific blood products. Surgery 1982, 92:315-321.
16. Caine RY, White DJG, Thiru S, et al: Cyclosporin A in patients receiving renal allografts from cadaver donors. Lancet 1978, 2:1323-1327.
17. Starzl TE, Hakala TR, Rosenthal JT, et al: The Colorado-Pittsburgh cadaveric renal transplantation study with cyclosporine. Transpl Proc 1983, 15:2459-2462.
18. European Multicentre Trial Group: Cyclosporin in cadaveric renal transplantation: One year follow up of a multicentre trial. Lancet 1983, 2:986-989.
19. Canadian Multicentre Transplant Study Group: A randomized clinical trial of cyclosporine in cadaveric renal transplantation. N Engl J Med 1983, 309:809-815.
20. Kahan BD: Cyclosporine: A powerful addition to the immunosuppressive armamentarium. Am J Kidney Dis 1984, 3:444-455.
21. Braun WE: Renal allograft rejection, in Bayless TM, Brain MC, Cherniak RM (eds): Current Therapy in Internal Medicine, 1984-1985. Philadelphia, BC Decker Inc, 1984, 1249-1257.
22. Streem SB, Novick AC, Braun WE, et al: Low-dose maintenance prednisone and antilymphoblast globulin for the treatment of acute rejection. Transplantation 1983, 35:420-424.
23. Dunnill MS: Histopathology of rejection in renal transplantation, in Morris PJ (ed): Kidney Transplantation: Principles and Practice. New York, Grune & Stratton, 1979, 225-249.
24. Zoller KM, Cho SI, Cohen JJ, et al: Cessation of immunosuppressive therapy after successful transplantation: A national survey. Kidney Int 1980, 18:110-114.
25. First MR, Munda R, Kant KS, et al: Steroid withdrawal following HLA-identical related donor transplantation. Transpl Proc 1981, 13:319-322.
26. Claman HN: Glucocorticosteroids: II. The clinical responses. Hosp Practice, July 1983, 143-151.
27. Penn I: Lymphomas complicating organ transplantation. Transpl Proc 1983, 15(suppl 1):2790-2797.
28. Bulkley BH, Robert WC: The heart in systemic lupus erythematosus and the changes induced in it by corticosteroid therapy. Am J Med 1975, 52:243-264.
29. Stubbs SS, Movall RM: Intravenous methylprednisolone sodium succinate: Adverse reactions reported in association with immunosuppressive therapy. Transpl Proc 1973, 5:1145-1146.
30. McGougal BA, Whittier FC, Cross DE: Sudden death after bolus steroid therapy for acute rejection. Transpl Proc 1976, 8:493-496.
31. Woods JE, Zincke H, Palumbo PJ, et al: Hyperosmolar nonketotic syndrome and steroid diabetics: Occurrence after renal transplantation. JAMA 1975, 231:1261-1263.
32. Cupps TR, Fauci AS: Corticosteroid-mediated immunoregulation in man. Immunol Rev 1982, 65:133-155.
33. Claman HN: Glucocorticosteroids: I. Anti-inflammatory mechanisms. Hosp Practice, July 1983, 123-134.
34. Knudsen PJ, Strom TB: Glucocorticoids inhibit transcription of interleukin 1-encoding RNA. Read before the American Society of Nephrology, New Orleans, Dec 18, 1985.
35. Hardt C, Rollinghoff M, Pfizenmaier K, et al: Lyt-23+ cyclophosphamide-sensitive T cells regulate the activity of an interleukin 2 inhibitor in vivo. J Exp Med 1981, 154:262-274.
36. Elion GB, Callahan SW, Hitchings GH, et al: Experimental, clinical, and metabolic studies of thiopurines. Cancer Chemother 1962, 16:197-202.
37. Analgesic - antipretics, anti - inflammatory agents, and inhibitors of uic acid synthesis, in Goodman LS, Gilman A (eds): The Pharmocological Basis of Therapeutics. New York, Macmillan Publishing co Inc, 1970, 314-347.
38. Aklylating agents, antimetabolites, hormones, and other antiproliferative agents, in Goodman LS, Gilman A (eds): The Pharmacological Basis of Therapeutics. New York, Macmillan Publishing Co Inc, 1970, 1348-1395.
39. Halloran P, Ludwin D, April M, et al: Randomized comparison between cyclosporine and conventional therapy plus Minnesota antilymphocyte globulin in cadaveric renal transplantation. Transpl Proc 1983, 15:2513-2516.
40. Sutherland DER, Strand M, Fryd DS, et al: Comparison of azathioprine-antilymphocyte globulin versus cyclosporine in renal transplantation. Am J Kidney Dis 1984, 3:456-461.
41. Shied CF III, Cosimi AB, Tolkoff-Rubin, et al: Use of antihymocyte globulin for reversal of acute allograft rejection. Transplantation 1979, 28:461-464.
42. Hoitsma AJ, Reekers P, Kreeftenberg H, et al: Treatment of acute rejection of cadaveric renal allografts with rabbit antithymocyte globulin. Transplantation 1982, 33:12-16.
43. Gewurz H, Pickering RJ, Moberg A, et al: Reactivities to horse antilymphocyte globulin. Int Arch Allergy 1970, 39:210-220.
44. Monaco AP: Antilymphocyte globulin: A Clinical transplantation research opportunity. Am J Kidney Dis 1982, 2:67-78.
45. Cohen DJ, Loertscher R, Rubin MF, et al: Cyclosporine: A new immunosuppressive agent for organ transplantation. Ann Intern Med 1984, 101:667-682.
46. Venkataramanan R, Starzl TE, Yang S, et al: Biliary excretion of cyclosporine in liver transplant patients. Transpl Proc 1985, 17:286-289.
47. Elliott JF, Lin Y, Mizel SB, et al: Induction of interleukin 2 messenger RNA inhibited by cyclosporin A. Science 1984, 226:1439-1441.
48. Tilney NL, Milford EL, Aranjo JL, et al: Experience with cyclosporine and steroids in clinical renal transplantation. Ann Surg 1984, 200:605-613.
49. Sommer BG, Ferguson RM: Three immediate postrenal transplant adjunct protocols combined with maintenance cyclosporine. Transpl Proc 1985, 17:1235-1238.
50. Canafax DM, Martel EJ, Ascher NL, et al: Two methods of managing cyclosporine nephrotoxicty: Conversion to azathioprine, prednisone, or cyclosporine, azathioprine, and prednisone. Transpl Proc 1985, 17:1176-1177.
51. Illner WD, Land W, Habersetzer R, et al: Cyclosporine in combination with azathioprine and steroids in cadaveric renal transplantation. Transpl Proc 1985, 17:1181-1184.
52. Myers BD, Ross J, Newton L, et al: Cyclosporine-associated chronic nephropathy. N Engl J Med 1984, 311:699-705.
53. Bennett WM: Basic mechanisms and pathophysiology of cyclosporine nephrotoxicity. Transpl Proc 1985, 17(suppl 1):297-302.
54. Kohler G, Milstein C: Continuous cultures of fused cells secreting antibody of predefined specificity. Nature 1975, 259:495-497.
55. Cosimi AB, Calvin RB, Burton RC, et al: Use of monoclonal antibodies to T cell subsets for immunologic monitoring and treatment in recipients of renal allografts. N Engl J Med 1981, 305:308-314.
56. Ortho Multicentre Transplant Study Group: A randomized clinical trial of OKT3 monoclonal antibody for acute rejection of cadaveric renal transplants. N Engl J Med 1985, 313:337-343.
57. Starzl TE, Fung JJ: Introduction: Reversal of acute renal allograft rejection with KT3. Dateline: Issues in Transplantation 1985, 1(summer/fall):2-4.
58. Norman DJ: Reversal of acute renal allograft rejection with OKT3. Dateline: Issues in Transplantation 1985, 1(summer/fall):5-17.
59. Besarab A, Jarrell B, Ihle BU, et al: Adverse effects of prophylactic irradiation and acute tubular necrosis on renal graft function and survival. Nephron 1982, 31:347-353.

60. Sampson D, Levin BS, Hoppe RT, et al: Preliminary observations on the use of total lymphoid irradiation, rabbit antithymocyte globulin and low dose prednisone in human cadaver renal transplantation. Transpl Proc 1985, 17:1299-1303.
61. Starzl TE, Weil R III, Koep LJ, et al: Thoracic duct fistula and renal transplantation. Ann Surg 1979, 190:474-486.
62. Pilepich MV, Sicard GA, Breauz SR, et al: Renal graft irradiation in acute rejection. Transplantation 1983, 35:208-211.
63. Allen NH, Dyer P, Geoghegan T, et al: Plasma exchange in acute renal allograft rejection: A controlled study. Transplantation 1983, 35:425-428.
64. Aljani MR, Pechan BW, Dan F, et al: Treatment of steroid-resistant renal allograft rejection with plasmaleukapheresis. Transpl Proc 1983, 15:1063-1066.
65. Cardella CJ, Sutton DM, Falk JA, et al: A controlled trial evaluating intensive plasma exchange in renal transplantation. Eur Dial Transpl Assoc 1980, 17:429-434.
66. Council on Scientific Affairs: Current status of therapeutic plasmapheresis and related techniques: Report of the AMA Panel on Therapeutic Plasmapheresis. JAMA 1985, 253:819-825.
67. Griffin PJA, Salaman JR: A controlled trial of heparin in renal transplant rejection. Transplantation 1981, 32:306-307.
68. Kincaid-Smith P: Modification of the vascular lesions of rejection in cadaveric renal allografts by dipyridamole and anticoagulants. Lancet 1969, 2:920-922.
69. Clyne DH, Kincaid-Smith P, Ribush NT, et al: Improvement in renal blood flow of rejecting renal allografts during heparin infusion. Med J Aust 1970, 1:522-524.
70. Dosekun AK, First MR, Chandran PKG, et al: Successful treatment by defibrination with ancrod in a patient with hyperacute renal allograft failure and a deficiency of plasma prostacyclin stimulating factor. Clin Nephrol 1982, 18:101-105.
71. MacDonald AS, Balitsky P, Cohen A, et al: Cyclosporine for steroid-resistant rejection in azathioprine-treated renal recipients. Transpl Proc 1983, 15:2535-2537.
72. Fine RN, Terasaki PI, Ettenger RB, et al: Renal transplantation update. Ann Intern Med 1984, 100:246-257.
73. Lenhard V, Massen G, Seifert P, et al: Characterization of transfusion-induced suppressor cells in prospective kidney allograft recipients. Transpl Proc 1982, 14:329-332.
74. Singal DO, Joseph S: Role of blood transfusions on the induction of antibodies against recognition sites on T lymphocytes in renal transplant recipients. Hum Immunol 1982, 4:93-108.
75. Flechner S, Kerman RH, Van Buren CT, et al: The use of cyclosporine A for high MLC haploidentical living-related transplants. Transpl Proc 1983, 15:442-445.
76. Fryd DS, Sutherland DER, Simmons RL, et al: Results of a prospective randomized study on the effect of splenectomy versus no splenectomy in renal transplant patients. Transpl Proc 1981, 13:48-56.
77. Sutherland DER, Fryd DS, So SKS, et al: Long-term effect of splenectomy versus no splenectomy in renal transplant patients. Transplantation 1984, 38:619-624.

“SELLING PRACTICES IS OUR BUSINESS”

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping hundreds of doctors like yourself buy and sell their practices. We guide you through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902

THE WATERBURY HOSPITAL CENTER
PRESENTS A CONFERENCE:

PSYCHIATRY FOR THE NON-PSYCHIATRIST
ANXIETY, DEPRESSION AND GRIEF

WEDNESDAY, SEPTEMBER 30, 1987
8:30 A.M. - 1:30 P.M.

SHERATON HOTEL
WATERBURY, CONNECTICUT

For information call Ms. Tamera Burke, Division of Psychiatry, Waterbury Hospital, 64 Robbins St., Waterbury, CT 06721

Phone (203) 573-6201

Azidothymidine (AZT)

LISA JABLON, PHARM. D.

Introduction

AZT (chemical name, azidothymidine; Brand name, Retrovir®; Generic name, zidovudine, manufactured by Burroughs Wellcome) a visostatic thymidine analogue was approved March 10, 1987 for the treatment of Aquired Immunodeficiency Syndrome (AIDS) or AIDS related complex (ARC). Forty-five hundred patients with AIDS or ARC have received AZT under investigational protocols with reportedly promising results.[1]

The Hartford Hospital outpatient pharmacy was a designated distributor for patients enrolled in a clinical trial on the long term safety of AZT. Hartford Hospital affiliated infectious disease physicians treated 7 patients for 1-2 months with mixed results.

While the lay press has focused attention on the early promising results of AZT it must be emphasized that the agent is virostatic and does not represent a cure for aids.[1-5]

Pharmacology and Pharmacokinetics

AZT (3'azido-3'deoxythimidine) has demonstrated potent inhibition of the HIV (Human Immunodeficiency Virus, a unifying name for HTLV-III/LAV) in vitro at concentrations of 1-10 uMol/L.[4] AZT acts in the host's cytoplasm where it floods the cell with false DNA building blocks so the virus can't make copies of itself.[4] Specifically, incorporation of thymidine with 3'azido group into viral DNA polymerase (reverse transcriptase) prevents the 5' to 3' phospodiester linkages terminating DNA chain synthesis and viral replication.[4,5] Pharmacokinetic data are limited and have only been reported for 14 patients. AZT is well absorbed after oral dosing.[2,5] It's incomplete bioavailability of 60-70% is due to extensive first pass metabolism not decreased absorption.[2,5] The serum half-life in humans is one hour.[2,5] Plasma levels of 5 uMol/L are achieved following oral doses of 5mg/kg or IV doses of 2.5mg/kg.[2,5] AZT is rapidly metabolized in the liver to an inactive 5' glucuronide AZT (GAZT).[2,5] Following IV dosing, 25% of AZT is excreted unchanged in the urine while 60% is recovered as the inactive metabolite GAZT.[2,5] AZT reportedly crosses the blood brain barrier.[2,5] The CSF concentrations in one patient 4 hours after an IV dose of 5mg/kg was 0.86 uMol/L with simultaneous plasma concentrations of 1.14 uMol/L.[2,3,5]

Clinical Studies

Yarchoan et al in conjunction with the National Cancer Institute (NCI) published the results of an uncontrolled clinical trial using AZT in 19 patients with AIDS or ARC.[3] Fifteen of the 19 responded favorably showing increases in the numbers of helper-inducer T lymphocytes; 6 patients who were anergic developed positive skin test reactions which reverted 2 months after AZT discontinuation; 2 cleared chronic fungal nailbed infections without antifungal treatment and 13 patients gained an average of 2 kg each.[3] Later data also reports improvement in neurological symptoms with several patients.[2] Five patients in the study had Kaposi's Sarcoma and early data suggests that AZT may not be beneficial for these patients.

In September 1986, a phase 2 study involving 282 patients with AIDS plus PCP and ARC was prematurely discontinued after preliminary results showed a disproportionate number of deaths in the group receiving placebo.[2] Half the patients received 250mg AZT orally every four hours while the other half received placebo with a median treatment of 4.5 months. Seventeen deaths occured overall; 16 in the placebo group and one in the AZT group.[2] All deaths were attributed to opportunistic infections.[2] As a result of this study, phase 3 trials (long term safety) were conducted from September 1986 to February 1987 and the results of these studies will soon be published.

Adverse Effects

From the available data the most common adverse reaction was mild headache occuring in nearly 50% of the 19 patients from the NCI study.[3] Marked drops in hemaglobin are seen in approximately 25% of the patients usually 4 to 8 weeks from the onset of therapy.[2,5] This adverse reaction is related to bone marrow suppression and is worse in patients with AIDS opposed to ARC.[2,5] Transfusions were required in 25% of AZT recipients from the phase 2 study.[2,5] Neutropenia can occur late in the

---

LISA JABLON, PHARM. D., Pharmacy Resident, Hartford Hospital.

This new series on Drug Information Updates from the Hartford Hospital are supplied by Charles H. Nightingale, PH.D., Director of Pharmacy Services, Hartford Hospital.

Editors: Moses Sing Sum Chow, Pharm.D., and Robert A. Quercia, M.S., R.Ph.

course (2nd month) for 5% of AZT recipients and appears to be dose dependent. Dosage reductions or discontinuation may be required for both the anemia and neutropenia.[2,5]

Drug Interactions

Interactions with AZT are incompletely studied and Burroughs Wellcome currently advises avoidance of multiple daily doses of aspirin, acetaminophen, indomethacin, phobenecid, cimitidine, ranitidine or lorazepam.[2] These drugs may alter AZT metabolism and increase toxicity.[2]

Laboratory evidence indicates concurrent use of ribaviran may antagonize AZT's antiviral activity.[2]

Removal of Previous Drug Restrictions

AZT may now be continued during the use of Trimithorprim-sulfamethoxazole, pyrimethamine or acyclovir therapy.[2] Patients should be monitored closely for additive bone marrow suppressing toxicities.

Dosage and Cost

Adults: starting doses of 200mg po *every four hours around the clock*. Lower doses are recommended for severe drops in hematocrit. There are no dosage recommendations for children.

Cost to the Pharmacy is approximately $8,234 per year.

Availability

Retrovir® (AZT) is in limited supply and Burroughs Wellcome has restricted the dispensing of the drug to patients with confirmed pneumocystis carinii pneumonia, or a T4 cell count of less than 200/mm.[3] Procurement of retrovir for first time use in patients takes at least two weeks. Hartford Hospital patients on this drug will use their own supply. Hospitalized patients requiring this drug for the first time must have their infectious disease physician submit the appropriate forms to Burroughs Wellcome. If Burroughs Wellcome approves the use of retrovir (AZT) in a specific patient an authorizing code will be sent to the requesting physician and the drug may then be ordered from any pharmacy.

Summary

Retrovir® (AZT) has recently been approved for use in patients with AIDS or ARC. Although published data on efficacy and adverse effects are limited, it appears to offer a transient therapeutic effect and hope for some patients with this fatal disease. The long term efficacy and safety of AZT needs to be determined.

REFERENCES

1. Wallas C: The Big Chill: Fear of AIDS. Time magazine, Feb 16 1987, p 50-56.
2. Burroughs Wellcome. Uncontrolled clinical trial of the long term safety of AZT. September 1986. On file in drug info.
3. Yarchoan R: Administation of 3'Azido-3'Deoxythymidine, an inhibitor of ATIVIII/LAV replication to patients with AIDS or ARC. Lancet. March 15 1986, p 575-580.
4. Vogt M, Hirsch MS. Prospects for the prevention and therapy of infections with immunodeficiency virus. Reviews of Infectious Diseases 1986, 8:991-98.
5. The Medical Letter on Drugs and Therapeutics, 28(726):1986.

NEW YORK FERTILITY
RESEARCH FOUNDATION, INC.
For the Investigation of Problems of
Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

**LYME DISEASE
TESTING**
at
Middlesex Memorial Hospital

- **State Approved Method**
- **Fast Turnaround Time**

**PLEASE CALL (203) 344-6160
FOR INFORMATION AND MAILERS**

mmh

**Middlesex Memorial Hospital
28 Crescent Street
Middletown, Ct 06457**

EPIDEMIOLOGIC NOTES AND REPORTS

Human Immunodeficiency Virus Infection in Transfusion Recipients and Their Family Members

CENTERS FOR DISEASE CONTROL

CDC has received a report of human immunodeficiency virus (HIV) infection among multiply-transfused leukemia patients in New York City. In addition, there have been several reports that persons with transfusion-associated HIV infection have transmitted the virus to their sexual partners and newborn children. All infected transfusion recipients described in these reports had received blood or blood components before routine screening of donated blood for HIV antibody was begun in the spring of 1985.

Multiply-Transfused Leukemia Patients

During the past year, four long-term leukemia survivors at Memorial Sloan-Kettering Cancer Center in New York City developed unexplained fever, weight loss, diarrhea, or lymph-adenopathy. They subsequently had positive serological tests for HIV antibody. A retrospective study of other multiply-transfused leukemia patients was conducted to determine how many had been infected with HIV. Informed consent was obtained from all living patients. Positive enzyme immunoassay (EIA) tests were confirmed by Western blot assay. Patients known to have other risk factors for HIV infection were excluded from the study.

Sera was located for 182 deceased and obtained from 22 surviving leukemia patients treated during the years 1978-1986. Sixteen of these transfusion recipients were seropositive for HIV antibody (Table 1). They had received a mean of 27 units of packed red blood cells (range 2-56) and 137 units of platelets (range 10-483). Forty-five percent of these 204 patients had acute myelogenous leukemia; 20% had acute lymphocytic leukemia; 13%, chronic myelogenous leukemia; 4%, chronic lymphocytic leukemia; 6%, myelodysplastic syndromes; and 12%, other or unclassified leukemias. There was no correlation between type of leukemia and the presence of HIV antibody. An additional 23 newly diagnosed, untreated, and untransfused leukemia patients were tested and all were seronegative.

Additional Case Reports from Other Areas

Case 1: An elderly man with no known risk for AIDS received multiple units of blood in early 1982, including one from a donor who subsequently tested positive for HIV antibody. The recipient developed Pneumocystis carinii pneumonia (PCP) in 1983 and died in 1984. His wife, who did not have any other risk factors for AIDS, had had vaginal intercourse with him until he became ill in late 1982. In late 1984, her HIV antibody test was positive and she was diagnosed as having a type of lymphoma indicative of AIDS.[1]

Table 1

HIV SEROLOGY RESULTS IN LEUKEMIA PATIENTS, BY YEAR OF SPECIMEN COLLECTION – MEMORIAL SLOAN-KETTERING CANCER CENTER, NEW YORK CITY

Years	*Total number of patients tested*	*Number with positive test*	*Estimated* risk per component*
1978-80	86 (55M,31F)†	0 (0%)	0.00%
1981-83	77 (39M,38F)	9 (12%) (6M,3F)	0.07%
1984-86§	41 (21M,20F)	7 (17%) (2M,5F)	0.10%
Total	**204 (115M,89F)**	**16 (8%) (8M,8F)**	**0.05%**

*Estimated risk based on an average of 164 components per recipient.
†M=males; F=females.
§These patients were treated before screening of blood products began in March 1985; 22 long-term survivors, four of whom were seropositive, are included.

Case 2: A pregnant woman with no other risk factors for AIDS received four units of blood in 1978, including one from a donor who later tested positive for HIV antibody. A son, born in 1980, had failure to thrive beginning at 13 months of age and died with PCP in 1986. The woman, her son, her husband, and the child born shortly after the transfusion all tested positive for HIV antibody.

Reported by DA Scheinberg, MD, PhD, GY Minamoto, MD, K Dietz, MS, JWM Gold, MD, T Gee, MD, D Armstrong, MD, J Gabrilove, MD, B Clarkson, MD, N Chein, MS, L Reich, MD, Memorial Sloan-Kettering Cancer Center, DL Morse, MD, State Epidemiologist, New York State Dept of Health; M Batt, MD, Lutheran General Hospital, Park Ridge, HJ Miller, MD, Dept of Medicine, Evanston Hospital, Evanston, B Stevko, MD, Illinois Dept of Public Health; LA Chambers, MD, American Red Cross Blood Services—Northeast Region, Dedham, L Kunches, GF Grady, MD, State Epidemiologist, Massachusetts Dept of Public Health; Div of Blood and Blood Products, Center for Drugs and Biologics, FDA; AIDS Program, Center for Infectious Diseases, CDC.

CDC Editorial Note: At present, prevention of HIV infection and AIDS is dependent upon deferral of blood or plasma donation by persons at increased risk for AIDS, testing of donated blood and plasma for HIV antibody, heat treatment of clotting factor concentrates, avoidance of unprotected sexual contact and needle sharing by persons infected with HIV, and prevention of perinatal transmission by infected women. Counseling and HIV antibody testing have been recommended for persons at risk for infection (including homosexual/bisexual men, intravenous drug abusers, hemophilia patients, prostitutes, and persons who have had sexual contact with members of these groups).[2] Routine counseling and antibody testing have not been recommended for blood tranfusion recipients because, in

---

Morbidity and Mortality Weekly Reports, (Vol. 36, No. 10, 1987).

general, their risk for infection is extremely low. However, as illustrated by this report and others,[3] some multiply-transfused persons may be at a higher risk for HIV infection. In addition, some persons with transfusion-associated HIV infection have transmitted the virus to their sexual partners and, perinatally, to their infant children.

Although the number of infected transfusion recipients in the United States is unknown, it can be approximated using estimates of the prevalence of infection in donors, the efficiency of transmission, and the number of units transfused per year. In 1985, 0.04% of donations were positive for HIV antibody by Western blot assay.[4] If 0.04% had been the seroprevalence among donors in the year prior to screening, if all seropositive units had transmitted infection,[5] and if each seropositive unit had gone to a different recipient, then 7,200 of the approximately 18 million components transfused in 1984 (American Blood Commission, unpublished data) might have transmitted infection. If 60% of these recipients have died from their underlying disease,[6] then approximately 2,900 living recipients who acquired a transfusion-associated HIV infection in 1984 would remain. Most of these would be asymptomatic. The number of infected donors was probably lower in earlier years. Mathematical projections from reported transfusion-associated AIDS cases estimate that approximately 12,000 people now living in the United States acquired a transfusion-associated HIV infection between 1978 and 1984.[7]

Blood banking organizations in the United States have begun "look-back" programs to identify previous recipients of blood from donors who tested positive for HIV antibody after screening began. In one region, 70% of recipients identified through such a program had HIV antibody.[8] However, look-back programs cannot identify all infected transfusion recipients because many infected donors may have refrained from donating or become too ill to continue to donate after HIV serologic testing of donors began.

The risk of HIV transmission by transfusion was low, even before screening, and has been virtually eliminated by the routine screening of donated blood and plasma. However, since HIV-infected persons are at risk for developing AIDS or related conditions themselves and may transmit infection to others, physicians should consider offering HIV antibody testing to some patients who received transfusions between 1978 and late spring of 1985. This consideration should be based on the likelihood of infection in a recipient and the likelihood of transmission from that recipient. The risk of infection is greatest if the recipient received large numbers of transfusions and if the blood was collected during the few years before screening in an area with a high incidence of AIDS. (The leukemia patients in this report received many units of blood and blood components in an area with a higher prevalence of HIV than most parts of the United States, so their seropositivity rate is higher than would be expected in other patients. Conversely, persons who received a small number of units in a low prevalence area would have an extremely low risk of HIV infection.) Testing is particularly important if the patient is sexually active. Since the overall prevalence of infection in transfusion recipients is expected to be low, the positive predictive value of EIA screening tests for HIV antibody will be much lower than that seen when testing high-risk populations.[9] Therefore, all transfusion recipients with a positive EIA should also have their serum tested by a second method (Western blot assay, immunofluorescence assay) before they are informed of their test result. Seropositive persons should be evaluated for signs and symptoms of AIDS or related conditions and counseled regarding the avoidance of HIV transmission to others.

REFERENCES

1. Duncan ED, Miller HJ, McKeever WP. Non-Hodgkin's lymphoma, HTLV-III/LAV, and HTLV-III/LAV antibody in the wife of a man with transfusion-acquired aids. Am J Med 1986, 81:898-900.
2. CDC. Additional recommendations to reduce sexual and drug abuse-related transmission of human T-lymphotropic virus type III/lymphadenopathy-associated virus. MMWR 1986, 35:152-5.
3. Troy K, Cuttner J, Zaroulis C. Incidence of anti-HIV antibodies in patients with acute leukemia treated between 1978 and 1986 (Abstract). Blood 1986, 68:135a.
4. Schorr JB, Berkowitz A, Cumming PD, Katz AJ, Sandler SG. Prevalence of HTLV-III antibody in American blood donors (Letter). N Engl J Med 1985, 313:384-5.
5. Ward JW, Deppe DA, Samson S, et al. Risk of human immunodeficiency virus infection from blood donors who later developed the acquired immunodeficiency syndrome. Ann Inter Med 1987, 106:61-2.
6. Perkins HA, Samson S, Rosenschein S, et al. Risk of AIDS from blood donors who subsequently develop AIDS. Presented at the International Conference on Acquired Immunodeficiency Syndrome (AIDS), Atlanta, Georgia, April 16, 1985.
7. Peterman TA, Lui K, Lawrence DN, Allen JR. Estimating the risks of transfusion-associated AIDS and HIV infection. Transfusion (in press).
8. Menitove JE. Status of recipients of blood from donors subsequently found to have antibody to HIV (Letter). N Engl J Med 1986, 315:1095-6.
9. Ward JW, Grindon AJ, Feorino PM, Schable C, Parvin M, Allen JR. Laboratory and epidemiologic evaluation of an enzyme immunoassay for antibodies to HTLV-III. JAMA 1986, 256:357-61.

Progress Toward Achieving the National 1990 Objectives for Sexually Transmitted Diseases

The health objectives for the nation, established in 1979,[1] included 11 goals relating to the control of sexually transmitted diseases (STDs). Five are considered appropriate areas for federal involvement: gonorrhea, gonococcal pelvic inflammatory disease, syphilis, health-care provider awareness, and student awareness. A statement of each of these objectives and the progress toward their achievement follows:

By 1990, reported gonorrhea incidence should be reduced to a rate of 280 cases per 100,000 population.

During the 1960s, reported gonorrhea rates increased approximately 15% per year. In 1972, a national gonorrhea control program was initiated, and, by 1975, the rapid increase had halted. The rate of decline was slow through 1979, but it accelerated from 1979 to 1984 (Figure 1). Then, in 1985, overall gonorrhea rates increased slightly, reversing the downward trend that had lasted for a decade.[2] In 1986, total gonorrhea rates decreased to 372 cases per 100,000 population, returning to the 1984 level. However, all of the 1986 decline occurred among males; gonorrhea rates among females continued to increase. It now appears that the 1990 target of 280 cases per 100,000 population may not be met. One of the primary factors limiting the effective control of gonorrhea within the United States is the epidemic of organisms that are resistant to standard therapies (Figure 2). Since 1984, the number of resistant strains has been increasing rapidly. Reported numbers increased 98% in 1985 and an additional 90% in 1986.[3]

By 1990, reported incidence of gonococcal pelvic inflammatory disease should be reduced to a rate of 60 cases per 100,000 females.

Based on 1984 rates, the 1990 objective addressing gonococcal pelvic inflammatory disease (GPID) is likely to be achieved. However, GPID accounts for less than half of all pelvic inflammatory disease (PID). For example, Chlamydia trachomatis infection is estimated to account for one-quarter to one-half of all PID cases occurring each year.[4] Therefore, in 1985, the Public Health Services (PHS) broadened the original emphasis of this objective to include all PID. CDC has established a target of 560 PID cases per 100,000 population by 1990. Currently, data from the Hospital Discharge Survey conducted by the National Center for Health Statistics and the National Drug and Therapeutic Index indicate a trend toward a decline in the overall PID rate.

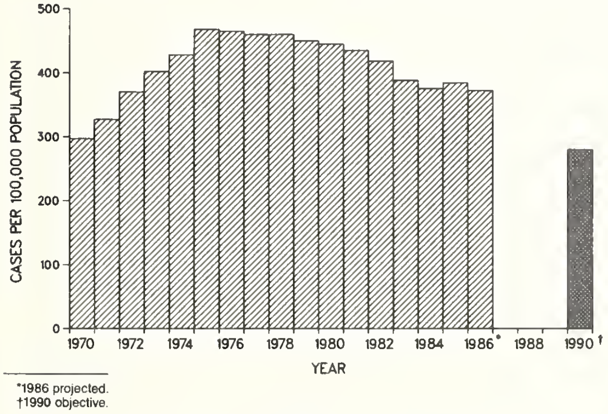


Figure 1

Incidence of gonorrhea by year—United States, 1970-1990

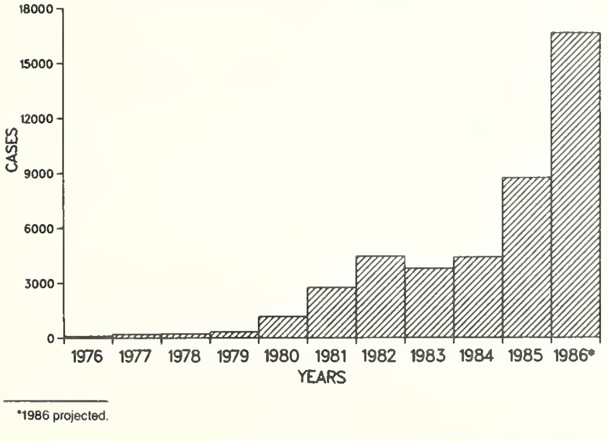


Figure 2

Cases of gonorrhea involving resistant strains—United States, 1976-1986

By 1990, the reported incidence of primary and secondary syphilis should be reduced to 7 cases per 100,000 population per year, with a reduction in congenital syphilis to 1.5 cases per 100,000 children under 1 year of age.

Rates of primary and secondary syphilis decreased markedly between 1982 and 1986 (Figure 3). The majority of the decrease has occurred in males and probably reflects behavioral changes among homosexual males in response to acquired immunodeficiency syndrome (AIDS) prevention recommendations.[5] Behavioral changes among populations at high risk for AIDS are likely to result in lower incidence rates for other STDs in these same groups.[6,7]

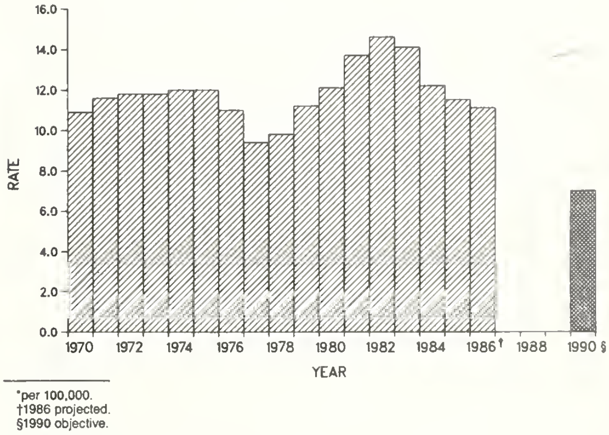


Figure 3

Primary and secondary syphilis incidence rates*—United States, 1970-1990

Reported rates of congenital syphilis among infants reached an all-time low of 3.0 cases per 100,000 live births in 1980, but, with the exception of FY 1982, have increased steadily since then. The 1986 rate was almost 13% higher than the 1985 rate, with three-fourths of the cases occurring in California, Florida, New York, and Texas. Several factors have contributed to the apparent increase. They include improved national surveillance, increased emphasis on reporting of stillbirths attributable to syphilis, and actual increases in the rate of infectious syphilis among females of childbearing age.[8]

By 1990, at least 95% of health care providers seeing patients with suspected cases of sexually transmitted diseases should be capable of diagnosing and treating all currently recognized sexually transmitted diseases.

Although training for health care professionals in the treatment of STDs has improved in recent years, it is still short of the necessary quality and scope. Since 1979, PHS has emphasized four approaches to improving the training of clinicians treating STD patients. First, 10 STD Prevention/Training Centers were established to improve the diagnostic, therapeutic, and patient management skills of mid-career clinicians directly involved with STD patients.[9] Second, PHS has funded the development and pilot testing of STD curricula in six medical schools. A survey of 1986 found that, in these medical schools, STD training had increased to an average of 10 hours per student (CDC, unpublished data). The same survey showed that 44% of medical schools had no clinical curriculum on STDs. Third, PHS has funded an increasing number of STD Research Training centers to encourage young scientists to pursue an academic career in STD research.[10] Fourth, PHS has funded the development of an instructional package for clinicians who do not frequently see STD patients in their practices. This package should be available by late fall 1987. Despite these efforts, it is unlikely that this objective will be met by 1990. Making a meaningful impact on medical school training will require more intensive marketing of the value of the STD curriculum and followup on these efforts.

By 1990, every junior and senior high school student in the United States should be receiving accurate, timely education about sexually transmitted diseases.

No systematic measures of this objective are available. In 1983, the Gallup Institute Youth Survey found that only one-third of high school respondents considered themselves "very informed," and almost one-half considered themselves "somewhat informed" about STDs (Gallup Institute, unpublished data). CDC has since placed more emphasis on behavioral knowledge and attitudes related to biological facts. Principally through state STD units, CDC actively promotes adoption of STD education for junior and senior high school students. Increased attention to school-based education as a way to prevent AIDS should improve knowledge, attitudes, and behaviors affecting other STDs as well.

Reported by: Office of Disease Prevention and Health Promotion, Public Health Svc, DHHS. Div of Sexually Transmitted Diseases, Center for Prevention Svcs, CDC.

CDC Editorial Note: Between the time of establishing the health objectives for the nation in 1979 and the third review of progress toward their achievement in November 1986, the national STD status has followed an irregular course. During this interval, a major new sexually transmissible agent, human immunodeficiency virus (HIV), has come to dominate the field. Moreover, the variety and burden of STDs have increased markedly. More than 50 diseases and syndromes account for over 13 million cases and 7,000 deaths annually from STDs, excluding AIDS. The costs of treating PID and its sequelae alone are estimated to exceed $2.6 billion annually.

The population at risk of STDs increased markedly between 1970 and 1980, with the coming of age of the "baby boom" cohort and the increased sexual activity among this segment of the population.[11] This factor greatly influenced trends in both bacterial and viral STDs from 1979 to 1986. However, in the 1980s, as this group has become older and their sexual behaviors have stabilized, the chances for progress toward achieving the 1990 objectives have improved.

STD control for the balance of the 1980s and into the next decade will focus on the primary prevention of all sexually transmitted infections, especially the persistent viral infections for which no therapies or vaccines exist. This new emphasis will require a shifting or priorities, which have historically been focused on secondary prevention efforts. However, if current primary prevention efforts are successful, an overall reduction in all STDs will result.

REFERENCES

1. Public Health Service. Promoting health/preventing disease: objectives for the nation. Washington, DC: US Department of Health and Human Services, 1980.
2. CDC. Sexually transmitted disease statistics. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service (in press).
3. Zenilman JM, Cates W JR, Morse SA. Neisseria gonorrhoeae: an old enemy rearms. Infect Dis and Med Lett Obstet Gynecol 1986, 8(suppl):2s-9s.
4. CDC. Chlamydia trachomatis infections: policy guidelines for prevention and control. MMWR 1985, 34(suppl 3):53S-74S.
5. CDC. Syphilis—United States, 1983. MMWR 1984, 33:433-6, 441.
6. Judson FN. Fear of AIDS and gonorrhea rates in homosexual men (Letter). Lancet 1983, 2:159-60.
7. CDC. Declining rates of rectal and pharyngeal gonorrhea among males—New York City. MMWR 1984, 33:295-7.
8. CDC. Congenital syphilis—United States, 1983-1985. MMWR 1986, 35:625-8.
9. Margolis S. Initiation of the sexually transmitted diseases prevention/training clinic program. Sex Transm Dis 1981, 8:87-93.
10. Cates W Jr. Priorities for sexually transmitted diseases in the late 1980s and beyond. Sex Transm Dis 1986, 13:114-7.
11. Zelnik M, Kantner JF. Sexual activity, contraceptive use, and pregnancy among metropolitan area teenagers: 1971-1979. Fam Plan Perspect 1980, 12:230-7.

Newborn Screening for Sickle Cell Disease and Other Hemoglobinophathies

NATIONAL INSTITUTES OF HEALTH

Introduction

Hemoglobinopathies represent one of the major health problems in the United States and constitute the most common genetic disorders in some populations. Sickle cell diseases (SS, SC, S-beta thalassemia) alone affect about 1/400 American black newborns. These and other hemoglobinopathies are common in persons of African, Mediterranean, Asian, Caribbean, and South and Central American origins as well. Although the technology to screen infants for hemoglobinopathies in the newborn period has been available for many years, widespread adoption of screening has not occurred. Reasons have included lack of a demonstrated improvement in outcome with early diagnosis, uncertainty about whom to test, technical difficulties caused by the high level of fetal hemoglobin in the neonate, and questions about obligations to those identified as carriers.

For at least 20 years, it has been known that children with sickle cell anemia have an increased susceptibility to severe bacterial infection, particularly due to *Streptococcus pneumoniae.* The risk of major infection with this organism is greatest in the first three years of life and can occur as early as four months of age. This infection may be the first clinical manifestation of disease and carries a case fatality rate as high as 30 percent. Acute splenic sequestration crisis, another catastrophic event, also contributes to mortality in infancy. Data are now available documenting a reduction of morbidity and mortality through early diagnosis and immediate entry into programs of comprehensive care, including penicillin prophylaxis. Early diagnosis of hemoglobinopathies is facilitated by newborn screening. Screening has the capability of reaching infants who might otherwise be lost to the health care system or delayed in their entry into it. Neonatal testing to identify infants with major sickling diseases allows prompt institution of ongoing care, including the provision of effective prophylaxis. It is unclear whether presymptomatic interventions offer significant advantage to infants with other hemoglobinopathies (e.g., Hb E-beta thalassemia and homozygous beta and alpha thalassemias). Identification by newborn screening may, however, provide natural history data and/or allow testing of potential interventions.

To examine questions surrounding the issue of neonatal screening and to enhance understanding among scientists, health care providers, and the public at large, the National Heart, Lung, and Blood Institute and the National Institute of Child Health and Human Development of the National Institutes of Health (NIH), the Genetic Disease Services Branch, the Division of Maternal and Child Health, the Bureau of Health Care Delivery and Assistance of the Health Resources and Services Administration, and the NIH Office of Medical Applications of Research convened an NIH Consensus Development Conference on Newborn Screening for Sickle Cell Disease and Other Hemoglobinopathies on April 6-8, 1987. For 1½ days, experts in the field presented their findings, and an audience that included health professionals, parents, patients, and other interested persons discussed the issues. A consensus panel representing the fields of biochemistry, genetics, pediatrics, obstetrics, hematology, public health, nursing, law, epidemiology, and counseling considered the scientific evidence and developed answers to the following questions;

1. Are programs for screening the newborn for sickle cell disease effective in decreasing morbidity and mortality?
2. What are the techniques of screening, and what is their efficacy?
3. What are the major factors to be considered, including benefits and risks, in conducting newborn screening programs?
4. What are the optimal followup and management of infants identified with hemoglobinopathies (disease and carriers)?
5. What future research directions are indicated?

1. Are Programs for Screening the Newborn for Sickle Cell Disease Effective in Decreasing Morbidity and Mortality?

Although the technology to screen infants in the newborn period has been available for the past 15 to 20 years, screening has not received widespread acceptance largely because of the perception that, without effective treat-

---

From the Office of Medical Applications of Research, National Institutes of Health, Bethesda, Md.

Reprint requests to Office of Medical Applications of Research, Bldg 1, Room 216, Bethesda, MD 20205 (Michael J. Bernstein).

ment, early diagnosis would not decrease morbidity and mortality.

There is now indisputable evidence that rates of morbidity and mortality can be significantly reduced by programs that screen newborns for sickle cell disease, if they are linked to comprehensive clinical management systems that include parental education. A recent multicenter randomized trial of oral penicillin prophylaxis in children with sickle cell disease showed an impressive 85 percent reduction in the incidence of infection in the group treated with oral penicillin as compared with the group given placebo. The 13 septic episodes among the 110 patients in the placebo group resulted in three deaths compared with no deaths and only two septic episodes among the 105 patients treated with prophylactic penicillin. These signficant differences between the placebo and penicillin groups were compelling reasons to terminate the study 8 months early, after an average followup of 15 months.

Over the past 20 years, a case fatality rate of 30 percent has been commonly observed among children with sickle cell anemia who develop sepsis. Because babies with sickle cell disease may develop sepsis as young as four months of age, early provision of comprehensive care coupled with prophylactic penicillin beginning prior to age four months is now recommended. An additional factor possibly contributing to improved survival is the widespread availability of pneumococcal vaccine. These effective interventions fully justify the establishment of newborn screening programs to assure early access to care.

2. What are the Techniques of Screening, and What is Their Efficacy?

The panel recommends centralized laboratories for mass screening programs and for confirmation of diagnosis of sickle cell disease states because of the expertise available and the experienced gained from analysis of large numbers of samples.

Effective laboratory procedures exist that are currently being applied in statewide programs for newborn screening for sickle cell disease. The technology for mass screening for hemoglobinopathies is still evolving, especially for the detection of thalassemia states. Electrophoresis at alkaline pH on cellulose acetate followed by further examination of abnormal samples by acid electrophoresis on citrate agar is presently the most popular procedure used for mass screening. Advantages include simplicity, low cost, and standardization. These techniques provide reliable detection of hemoglobins (Hb) S, C, and A even in the presence of large amounts of Hb F. Disadvantages include the need for two difference electrophoretic procedures to ensure accurate results and limited resolution of other abnormal hemoglobins. Several large pilot studies have demonstrated low error rates. However, more data are needed to assess the technical adequacy of each screening procedure with regard to its reproducibility, sensitivity, specificity and error rates.

Thin layer isoelectric focusing is also currently being employed in many newborn screening programs. This methodology provides better resolution of Hbs A, S, and C from Hb F and detection of many other abnormal hemoglobins by a single procedure. It is, however, more costly, and there has been less experience in its use. High pressure liquid chromatography (HPLC) is a highly sensitive, rapid, and reproducible technique capable of differentiating among many abnormal hemoglobins. This method is currently being evaluated in a few newborn screening programs. Solubility testing procedures are not satisfactory for screening purposes.

The panel concludes that at the present time, cellulose acetate followed by citrate agar electrophoresis is the method of choice for large-scale centralized mass screening. However, isoelectric focusing is a satisfactory alternative and may be the method of choice for some screening programs.

Blood collected from heel puncture and dried on filter paper has been the most common method of sample collection for newborn screening programs for inborn errors of metabolism (phenylketonuria, etc.). The use of these same blood samples in neonatal testing for sickle cell disease is advantageous because the system for collection already exists; no duplicate blood sampling is required; and transmittal to centralized laboratories is in place. Disadvantages include susceptibility to sample deterioration and the possibility of contamination by neonatal blood transfusion. Missed sampling is a problem when infants are in special care units or are discharged early.

Alternatively, cord blood samples can be used for neonatal screening. The hemoglobin components within these samples (especially Hb Barts) are more stable, and the problem of contamination by transfusion is avoided. However, cord blood can be contaminated with maternal blood. It is not easily transported and may not be collected during unattended deliveries.

Techniques recommended for newborn screening also can be used for the testing of individuals of any age. Whatever screening method is used, confirmation of abnormal results by analysis of followup blood samples is imperative. Every screening laboratory must participate in a quality-control program that includes proficiency testing. Establishment of a national proficiency testing program should be a high priority, and it should yield predictive values of all test results.

3. What are the Major Factors to be Considered, Including Benefits and Risks, in Conducting Newborn Screening Programs?

In conducting an adequate newborn screening program, the following factors should be considered.

Population To Be Screened

The panel recommends universal screening of all newborns for hemoglobinopathies. Programs that screen only specific high-risk segments of a population tend to miss individuals who are inaccurately registered and to encourage nonscreening because of provider complacency. This panel believes that the health risks to children with sickle cell diseases are so great that major efforts should be made to identify every affected child. Therefore, the panel recommends that most states adopt a policy of screening all newborns. For those states with very few at-risk members, targeted screening might be considered. State genetic planning committees and sickle cell advisory committees should provide an appropriate forum for considering the advisability of adopting this exception to the recommeded norm.

The Role of Prenatal Screening

The screening for hemoglobinopathies should include both prenatal maternal and neonatal screening as a continuum of health care. Prenatal maternal hemoglobin screening will help to determine maternal obstetrical and neonatal risk and will provide genetic information for the parents, as well as make prenatal diagnosis possible.

Mandating the Provision of Screening

Good medical practice dictates that screening be provided for all neonates as a part of ordinary health care. The benefits of screening are so compelling that its provision should not be left to the discretion of individual physicians or health care facilities. State law should require the provision of such services.

Providers should inform pregnant women about the availability and purpose of antenatal and neonatal hemoglobin screening as early as possible in pregnancy. Screening should be presented to the parent as a part of the usual panel of neonatal tests. The parent may refuse any of these tests. If the parent does so, the provider should document this fact.

Implications of the Heterozygous State

A specific protocol portrait followup should be developed by each screening program. When a neonate with trait is identified, a health care provider must contact the family with the results of the screening and offer family testing and couseling or referral for these services. The health care provider must, however, understand that this information could be disruptive to family well-being because it may raise fears of chronic illness, exposure of nonpaternity, and concern about sickle cell disease in future pregnancies. Therefore, the provider must approach and counsel first and foremost the mother, as the pivotal caretaker. Subsequent decisions regarding testing and counseling of other family members should be done with guidance from the mother, and always with sensitivity and discretion.

Education of Professionals and the Public

The training and continuing education of professional providers of care is of paramount importance and must be regularly included within the curricula of schools of medicine, nursing, social work, and other appropriate professions as well as in continuing postgraduate courses. Such education should provide the student and professional with knowledge of the etiology, pathophysiology, medical managment, and psychosocial issues of relevance in assuring the comprehensive care of patients with hemoglobinopathies.

Public education is also critical to an effective neonatal screening program. Focal points should include schools, day care providers, mass media, and appropriate literature. Such education ought to include a clear understanding of the purpose of screening and the nature of sickle cell disease and sickle cell trait.

Risks of Screening

The benefits of sickle cell screening in terms of reduced morbidity and mortality of children with sickle hemoglobinopathies clearly outweigh the risks of screening. Risks include misdiagnosis, stigmatization, diminished self-esteem, and potential discrimination. These risks, however, can be minimized by careful programmatic design and monitoring.

One risk of screening is the anxiety to the family from the discovery of homozygous sickle states. Although this risk is unavoidable, the family can be helped to deal with the problem through sympathetic and sensitive support and careful education regarding appropriate care. Anxiety can also result from the discovery that a child has a heterozygous state. Counselors should emphasize that the condition will have little clinical impact on the child. If retesting of a child to confirm an uncertain test result is required, the retesting should also be handled with sensitivity to parental and child concerns. In all these matters, direct patient contact by providers in an organized program is preferred over indirect methods such as mailed information.

Legal safeguards against discrimination in employment opportunities and insurance eligibility are also necessary, in view of the historical abuses of sickle cell screening. Considerable care should be taken to ensure confidentiality of screening results and to maintain the privacy of the family.

4. What are the Optimal Followup and Management of Infants Identified With Hemoglobinopathies (Disease and Carriers)?

Comprehensive specialized care should be the right of every child who is affected by a clinically significant hemoglobinopathy. Economic, social, cultural, or geographic concerns should not limit access to this care but should be taken into account when structuring a followup program. Local factors will dictate how such continuous, consistent, and comprehensive care is best provided. Sickle cell centers with staff and support services to care for the physical and psychosocial needs of sickle cell patients and their families provide a model for comprehensive care. This model, however, may be unattainable in many areas. A multidisciplinary approach and 24-hour availability of care must be a part of all systems. Primary care physicians should educate themselves about sickle cell diseases and about the availability of consultation and support services in their local area. In rural areas, health departments should designate health professionals who can assist in resource identification and network linkage. Consideration should be given to satellite clinics from tertiary centers that use local health care services. All components of the care system must be present in any followup program even though these components may be delivered by a single individual.

Whether the care of a child with sickle cell disease is obtained through a single provider, in a health maintenance organization,by a comprehensive sickle cell clinic, or a hematology clinic, the care must either be a component of a sickle cell network or have ties to such a network. Such followup capabilities should be in place before a screening program is instituted.

Sickle Cell Diseases

In the first few months of the child's life, the screening program should assist the family to identify an appropriate health care provider and to become established with the network before the onset of symptoms.

Components of the ideal network should include the sickle cell experts, genetic counselors, social services, interpreters, and knowledgeable sub-specialists such as neurologists, orthopedists, ophthalmologists, and others. The value of local and national sickle cell organizations in providing supportive counseling, peer groups, tutoring, intracommunity referrals, and advocacy cannot be overemphasized. These organizations should be involved in all phases of planning for the institution of neonatal screening for sickle cell disease.

The continuity provider must be prepared to:

1. Perform appropriate tests on the patient or the family to make the definitive diagnosis of the type of sickle cell disease.
2. Start penicillin prophylaxis prior to age four months and make every effort to assure compliance.
3. Institute routine immunization as well as *Hemophilus influenzae* B vaccine at 18 months and two years and *Streptococcus pneumoniae* vaccine at two years.
4. Monitor growth and development.
5. Advise optimal nutrition and dietary supplements as needed.
6. Perform periodic physical examinations and whatever laboratory and radiographic tests are indicated.
7. Educate and counsel parents on early identification of symptoms of impending serious complications (e.g., fever, lethargy, pallor, enlarging abdomen).
8. Provide genetic counseling to family.
9. Advise on health care management.
10. Identify peers and peer groups that the patient might relate to in the immediate health provider system or through the sickle cell network.
11. Provide access to blood banking expertise.
12. Provide access to knowledgeable emergency and inpatient pediatric services, preferably in a tertiary care center.
13. Provide supportive counseling to the parents and other family members or make referral to mental health services.

Key professionals include pediatricians, nurses, genetic counselors, social workers, nutritionists, and child developmentalists. If these disciplines are not available as separate individuals, their function can be subsumed by the provider or his or her designee.

Other Hemoglobinopathies

Patients with hemoglobinopathies of questionable or minimal signficance (e.g., CC, EE) can be followed in a sickle cell setting at the option of the patient or the provider. Patients with beta thalassemia other than S-beta thalassemia are best followed in thalassemia programs because of their need for intensive, long-term transfusion protocols.

The presence of alpha thalassemia in newborns is indicated by elevated levels of Hb Barts. Alpha thalassemia genes in black patients are generally of no clinical significance. Patients with Hb H disease require care by a hematologist. Asian patients with alpha thalassemia trait need counseling for the potential reproductive risk of Hb H disease or hydrops fetalis.

Carrier Identification

Followup of the child identified as heterozygous for a hemoglobinopathy requires no specialized medical care. However, there are several social and genetic counseling implications that should be recognized when designing a program for notification. To maintain confidentiality, results should be released only to the parents, the hospital, and the patient's physician. Information provided should explain that the carrier state is not a disease, that there may be implications for other family members, and that depending on results of family studies, future children may be at risk for a clinically significant hemoglobinopathy. A referral source for family testing and counseling should be clearly identified and obtainable through the network.

5. What Future Research Directions are Indicated?

Improved screening techniques for sickle cell disease and other hemoglobinopathies would be highly desirable. Research in several new methodologies presently under development, including high pressure liquid chromatography, immunologic techniques using monoclonal antibodies, and DNA analysis from whole blood samples, should be encouraged. This latter technique could result in the definition of the alpha and beta genotype of the patient and completely circumvent the problem of high levels of fetal hemoglobin at birth. Automated processing of neonatal blood samples and computer-generated reporting of screening results should also be explored for future diagnostic screening techniques. Each technique should be assessed for its technical adequacy with regard to reproducibility, sensitivity, specificity, and predictive values of screening tests for sickle cell diseases and other hemoglobinopathies.

Further analysis of the optimal components of networks of care for the newborn with sickle cell anemia is desirable. Standardization and evaluation of protocols used in these programs should be encouraged. The impact of the screening, followup, and treatment on the physical, social, cognitive, and emotional development of the child should be studied. The effect of neonatal diagnosis and counseling for sickle cell anemia on individual family members should also be assessed.

Further studies on the optimal management of the known potentially fatal complications of sickle cell anemia are required. First, a better definition of the dose, route of administration, type, and duration of penicillin therapy for prophylaxis of pneumococcal sepsis is necessary. In addition, the role of pneumococcal vaccine in sickle cell patients over age two should be assessed. Development of a pneumococcal vaccine effective at an earlier age should be encouraged. The mechanisms of susceptibility to infection in sickle cell patients should be investigated. More research is needed to determine the child at risk for splenic sequestration crises.

Studies of the potential effect of neonatal diagnosis on management of other hemoglobinopathies (including hemoglobin E-beta thalassemia and homozygous alpha and beta thalassemia) are required. These studies will necessitate the development of new and more effective methods for the diagnosis of alpha and beta thalassemia in the newborn than are currently available.

The impact of neonatal diagnosis on the reproductive choices in families at risk for all hemoglobinopathies should be evaluated.

Optimal methods for educating individuals and families at risk for sickle cell diseases and other hemoglobinopathies should be studied. The studies should include an analysis of the relevant aspects of these conditions, neonatal screening, and issues related to the process or counseling and followup. Research projects should evaluate the best method of educating and counseling both the families of trait newborns proximal to the birth of the child and the child itself, in the long run.

Conclusions

1. Effective intervention in children with sickle cell disease provides a major impetus for neonatal screening. Prophylactic penicillin therapy provided in a setting of comprehensive care has been found to significantly reduce the morbidity and mortality of patients with pneumococcal sepsis.

2. Reliable, simple, and cost-effective techniques for mass screening of neonates are available and have demonstrated validity.

3. The benefits of screening are so compelling that universal screening should be provided. State law should mandate the availability of these services while permitting parental refusal.

4. Centralization of laboratory services improves efficiency and decreases the probability of error.

5. To be effective, neonatal screening must be part of a comprehensive program for the care of sickle cell patients and their families. These services must include a network of providers who ensure optimal medical care, psychosocial support, and genetic counseling. Such followup capabilities should be in place before screening is instituted.

6. Further research should focus on the following: improving and evaluating the technology for screening; defining the impact of screening on the physical, social, cognitive, and emotional development on the child and on family members; assessing other methods of management of infection; and providing optimal education of individuals and families at risk.

In summary, the panel concludes that every child should be screened for hemoglobinopathies to prevent the potentially fatal complications of sickle cell disease during infancy.

Members of the Consensus Development Panel were: Doris L. Wethers, M.D. Panel Chairperson, Director, Comprehensive Sickle Cell Center, St. Luke's-Roosevelt Hospital Center; Associate Professor of Clinical Pediatrics, Columbia University College of Physicians and Surgeons, New York, NY; Robert L. Baehner, M.D., Chairman, Department of Pediatrics, University of Southern California School of Medicine, Physician-in-Chief, Department of Pediatrics, Children's Hospital of Los Angeles, Los Angeles, CA; Arthur Bank, M.D., Professor of Medicine and Genetics and Development, Columbia University College of Physicians and Surgeons, New York, NY; Robert A. Burt, J.D., Southmayd Professor of Law, Yale University, New Haven, CT; Solan Chao, M.D., Physician-in-Charge, Obstetrics Division, North Shore University Hospital, Manhasset, NY; Mary Lou de Leon Siantz, Ph.D., R.N., Assistant Professor, Graduate Program of Psychiatric and Mental Health Nursing, Director, Child and Adolescent Program, Indiana University-Purdue University at Indianpolis School of Nursing, Indianapolis, IN; Sara Reed DePersio, M.D., M.P.H., Chief, Maternal and Child Health Medical Services, Oklahoma State Department of Health, President, National Association for Maternal and Child Health and Crippled Children's Program, Oklahoma City, OK; Frederick C. Green, M.D., Emeritus Professor, Child Health and Development, George Washington University School of Medicine, Washington, D.C.; Ola M. Huntley, Ed.D., Family Counselor, Los Angeles Schools, Board of Directors, Sickle Cell Self-Help Group, Inglewood, CA; Richard T. Jones, M.D., Ph.D., Professor and Chairman, Department of Biochemistry, Oregon Health Sciences University School of Medicine, Portland, OR; John Kattwinkel, M.D., Professor of Pediatrics, Director of Newborn Services, Department of Pediatrics, University of Virginia School of Medicine, Charlottesville, VA; Andrew Z. Keller, D.M.D., M.P.H., F.A.C.E., Senior Epidemiologist, Andrew Z. Keller and Associates, Washington, D.C.; Claire O. Leonard, M.D., Assistant Professor of Pediatrics, Medical Director of Newborn Metabolic Screening Program, University of Utah School of Medicine, Salt Lake City, UT.

In absentia: Edith Irby Jones, M.D., Immediate Past President, National Medical Association, Houston, TX; George I. Lythcott, M.D., Dean, City University of New York Medical School, New York, NY.

Members of the planning committee were: Marilyn H. Gaston, M.D., Planning Committee Chairperson, Deputy Chief, Sickle Cell Disease Branch, Division of Blood Diseases and Resources, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD; Charlotte Catz, M.D., Chief, Pregnancy and Perinatology Branch, Center for Research for Mothers and Children, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD; Susan M. Clark, Social Science Analyst, OMAR Coordinator, Office of Medical Applications of Research, National Institutes of Health, Bethesda, MD; Edward A. Duffy, M.P.H., Deputy Chief, Genetic Disease Services Branch, Division of Maternal and Child Heal th, Health Resources and Services Administration, Public Health Service, Department of Health and Human Services, Rockville, MD; Irene Forsman, M.S., R.N., Nurse Consultant, Genetic Disease Services Branch, Division of Maternal and Child Health, Health Resources and Services Administration, Public Health Service, Department of Health and Human Services, Rockville, MD: Mary S. Harris, Ph.D., Genetics Consultant and President, Harris & Associates, Ltd., Atlanta, GA; Bertram Lubin, M.D., Director of Medical Research, Children's Hospital Medical Center, Co-Director, Northern California Sickle Cell Center, Oakland, CA; Allan S. Noonan, M.D., M.P.H., Chief, Genetic Disease Services Branch, Division of Maternal and Child Health, Health Resources and Services Administration, Public Health Service, Department of Health and Human Services, Rockville, MD; Kenneth A. Pass, Ph.D., Director, Newborn Screening Program, New York State Department of Health, Wadsworth Laboratories, Albany, NY; Howard A. Pearson, M.D., Professor of Pediatrics, Department of Pediatrics, Yale University School of Medicine, New Haven, CT.

The conference was sponsored by the National Heart, Lung and Blood Institute, Claude Lenfant, M.D., Director; National Institute of Child Health and Human Development, Duane Alexander, M.D., Director; Bureau of Health Care Delivery and Assistance, Health Resources and Services Administration, Division of Maternal and Child Health, Vince L. Hutchins, M.D., Director; Office of Medical Applications of Research, Itzhak Jacoby, Ph.D., Acting Director.

CSMS Members:

Let's Talk About A New Concept In Health Care.

Century 2000.

Century 2000. A Preferred Provider Program in which more than 4,000 health care providers in this state are now participating.

Century 2000. Providing quality with an emphasis on preventive care.

Century 2000. Reducing costs by encouraging members to use its managed care network of Preferred Providers.

Century 2000. For information on how you can become a Preferred Provider call 1-800-922-1742 extension 5137.

Blue Cross
Blue Shield
of Connecticut

Foodborne Disease: An Increasing Problem

STUART L. NIGHTINGALE, M.D.

The incidence of foodborne disease in the United States is on the rise. For example, one-third to one-half of all diarrhea cases in the U.S. are of foodborne origin. This means that, conservatively, one of every 10 Americans will have a bout with foodborne diarrhea this year. Better epidemiology and improved detection and identification methods have contributed to the rise in reported cases, but most public health experts agree that there has also been a real increase in the incidence of foodborne disease.

In the past few years, the United States has experienced its largest outbreak of salmonellosis (in Chicago), several outbreaks of botulism from unique sources (baked potatoes, grilled onions, garlic-in-oil), the most lethal outbreak of foodborne disease in decades (listeriosis in California) and the largest outbreak of foodborne shigellosis in U.S. history (in Odessa, Tex.).

Physicians who report suspicious clusters of diarrheal episodes and other conditions typically caused by foodborne pathogens are frequently responsible for identifying and eliminating a source of infection. Consequently, the family physician is often the first-line source of the "medical intelligence" necessary to target local and federal control efforts most effectively.

The Food and Drug Administration and the Centers for Disease Control are the primary federal agencies that deal with foodborne disease. The FDA is charged with preventing transmission of pathogens through the food supply. This is an immense task, given the volume and complexity of the food supply in this country.

FDA scientists test samples of a variety of food products under the agency's pathogen surveillance program, which began in 1983. The scientists isolate and identify organisms found in the samples, concentrating on the 12 microorganisms with the greatest potential for producing foodborne illness: *Aeromonas hydrophila, Bacilus cereus, Campylobacter jejuni, Clostridium perfringens, Escherichia coli, Listeria monocytogenes, Vibrio cholerae, Vibrio parahaemolyticus, Vibrio vulnificus, Yersinia enterocolitica,* Salmonella species and Staphylococcus species.

The CDC accepts and monitors reports of human foodborne disease. Like the FDA, the CDC also collects isolates of microorganisms. The FDA and CDC collections of isolates are used to identify microorganisms that may be responsible for an outbreak of foodborne disease and are also used for public health investigations. For example, in the large outbreak of milkborne salmonellosis in Chicago in 1985, the agencies compared plasmid profiles of milk isolates with those of all other human cases in the United States and concluded that the Chicago strain was unique.

Identification of the Listeria strain in the 1985 outbreak of listeriosis in California prompted the FDA to begin a survey of all domestic and imported softcheese manufacturers. The surveys resulted in numerous recalls of Listeria-contaminated food. Thus, the FDA and CDC's investigations of foodborne diseases can also help prevent outbreaks of disease.

Even with better detection and increased awareness of foodborne diseases, only a small fraction of cases ever reach the attention of federal health authorities. Thus, medical intelligence from physicians and others is essential so that the FDA, the CDC and other government agencies can efficiently use their scarce resources for examining high-risk foods.

As mentioned earlier, part of the increase in reported cases of foodborne disease is due to greater awareness of food as a vector for microorganisms—not only those that grow in food but also those that are merely transmitted by food. For example, it was not until 1982 that experts suspected food as a vector for listeriosis. In a highly industrialized nation with sanitary sewage disposal and few untreated water sources, food is clearly responsible for transmitting the bulk of foreign material, including microorganisms, that people ingest.

The increase in cases is also attributable to modern food-production methods. The disappearance of small local factories, especially small dairy plants, and the rise of large factories serving millions of consumers have greatly magnified the impact of a single occurrence of contamination. In one instance, a single state-of-the-art plant replaced 10 local dairies and served two to three million people. A single malfunction in the plant in 1985 resulted in 16,284 confirmed cases of salmonellosis and at least two deaths in the Chicago area from contaminated low-fat milk. Public health experts estimate that illness from this outbreak affected as many as 200,000 people.

Foodborne disease in the United States can also have its origins in other countries. Salmonellosis incidence, for example, continues to rise at an alarming rate, both in this country and abroad. Approximately four million cases occurred in the U.S. during 1985. The CDC encourages health professionals to submit human isolates of Salmonella species. The FDA routinely types all food isolates of Salmonella as part of its domestic and import

---

STUART L. NIGHTINGALE, M.D., Associate Commissioner for Health Affairs, Food and Drug Administration, Rockville, MD.

surveillance programs. This is particularly important for imported-food isolates because foreign serotype patterns are substantially different from that in our domestic food supply. These data allow the FDA to judge the effectiveness of its monitoring programs by determining whether cases of salmonellosis are due to serotypes in imported foods.

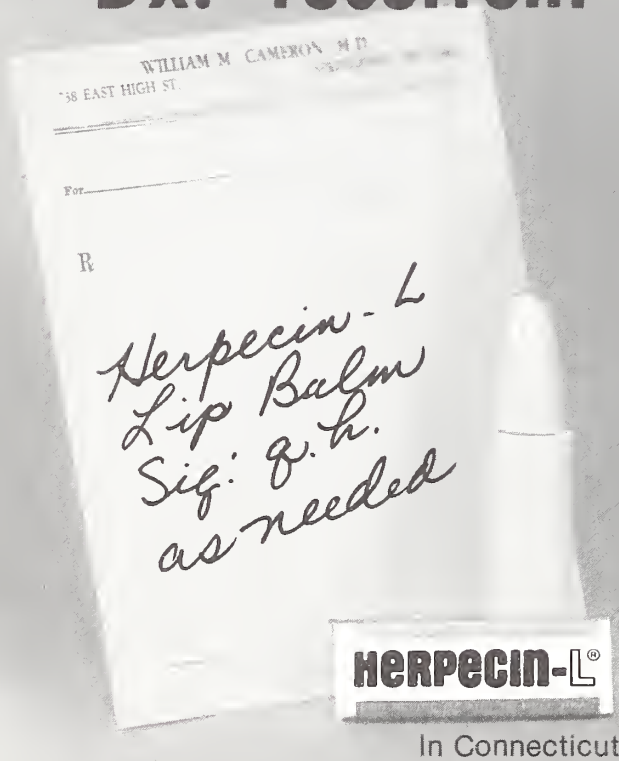
Some microorganisms, such as *V. cholerae,* present special problems. Sixteen cases of classic Asiatic cholera appeared recently in the southern United States, most of them linked with seafood from the Gulf of Mexico. The reported cases probably represent only a small portion of those that actually occurred. Detection of *V. cholerae* in shellfish is difficult because general sanitary quality does not necessarily reflect the presence or absence of cholera.

What can family physicians do to help control foodborne illness? First, they must be alert to unusual clustering of cases accompanied by symptoms compatible with pathogens transmitted through food. Physicians must report all suspicious cases to appropriate local or state public health authorities. The CDC maintains a hotline to receive such reports from state officials or from physicians during emergencies (days: 404-329-3311; evenings: 404-329-2888). The FDA also maintains an emergency hotline for consumer complaints and for reports of adverse food and drug reactions (301-443-1240 or 301-443-4667). The CDC has primary responsibility for receiving reports of foodborne disease, and the FDA immediately forwards to the CDC any such reports it receives.

Second, physicians should remember that foodborne disease is not always self-limiting and of little public health consequence. These illnesses are a major source of morbidity and mortality in the United States—and the problem is growing. Stool culturing in recognizable clusters of cases, especially those in which severity or symptoms warrant, can provide proof of a foodborne cause of illness and permit positive identification of the food vector. Hence, physician awareness, assistance and willingness to report suspected foodborne outbreaks are essential to assure maximum safety of the food supply.

This article appeared in the March issue of *American Family Physician*, Vol. 35, No. 3, March 1987.

Dx: recurrent herpes labialis



"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough.**" DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits.**" MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) . . . **response** was **dramatic. HERPECIN-L** . . proven **far superior.**" DDS, PA

"All patients claimed **shorter duration** . . . at **prodromal symptoms** . . . HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

Advice for Travelers

THE MEDICAL LETTER

People planning to travel to other countries often ask physicians for advice about immunization and prevention of diarrhea and malaria. Legal requirements for entry and epidemiological conditions in different countries vary from time to time, often unpredictably, but some reasonable recommendations can be made. More detailed information is available in the current edition of *Health Information for International Travel*, published by the Centers for Disease Control (CDC), which can be obtained from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402.

AIDS—Travelers, especially to Africa, should be reminded of the risk of acquiring AIDS from unsterile injections, blood transfusions, or sexual contacts.

TRAVELERS' DIARRHEA—The most common cause of travelers' diarrhea, usually a self-limited illness of several days' duration, is infection with enterotoxigenic *E. coli; Shigella, Salmonella, Campylobacter,* and other bacteria, viruses, and parasites are less common causes of this disorder. Travelers to areas where hygiene is poor should also be advised to avoid uncooked foods, unwashed salads, unpeeled fruit, and unboiled tap water, including ice (SL Gorbach and R Edelman Eds, *Travelers' Diarrhea: National Institutes of Health Consensus Development Conference,* Rev Infect Dis, 8 Suppl 2:S109, 1986).

Prophylaxis—Various drugs taken prophylactically can prevent travelers' diarrhea, but for most people, the risks of such use probably outweight the benefits. A single daily dose of 100 mg of doxycycline (*Vibramycin;* and others), a long-acting tetracycline, is often effective, but it can cause photosensitivity reactions, which may be especially troublesome for travelers to tropical areas, and tetracyclines are not recommended for children less than eight years old. One tablet daily of double-strength trimethoprim-sulfamethoxazole (160 mg of TMP and 800 mg of SMX—*Bactrim DS;* and others) can also prevent travelers' diarrhea, but serious skin reactions, including Stevens-Johnson syndrome, occur rarely, and hematological reactions, including hemolytic anemia, neutropenia, and aplastic anemia, have been reported. Trimethoprim alone (*Proloprim;* and others), 200 mg once daily, or norfloxacin (*Noroxin*—Medical Letter, 29:25, 1987), 400 mg once daily, may also prevent travelers' diarrhea (HL DuPont et al, Gastroenterology, 84:75, 1983; PC Johnson et al, Antimicrob Agents Chemother, 30:671, 1986). *Pepto-Bismol,* a nonprescription formulation of bismuth subsalicylate, can prevent diarrhea in about 65% of travelers who conscientiously take two tablets four times daily (HL DuPont et al, JAMA, 257:1347, March 13, 1987). *Pepto-Bismol* turns the tongue and stool black, and can cause mild tinnitus.

Treatment—Some Medical Letter consultants do not prescribe drugs prophylactically but rather instruct the patient to begin treatment promptly when symptoms occur. One double-blind placebo-controlled trial in 181 symptomatic patients found that either double-strength TMP-SMX or 500 mg of ciprofloxacin (not available in the USA), taken twice daily for five days, markedly reduced abdominal pain, nausea, and the number of unformed stools. Three days' therapy with double-strength TMP-SMX appears to be equally effective (CD Ericsson et al, Ann Intern Med, 106:216, Feb 1987). For symptomatic treatment of travelers' diarrhea, one controlled study in 219 patients found loperamide hydrochloride (*Imodium*) more effective than *Pepto-Bismol* (PC Johnson et al, JAMA, 255:757, 1986). Loperamide is a synthetic opioid that does not penetrate well into the brain and is not a controlled substance.

IMMUNIZATION—Several vaccines can be administered simultaneously at different sites. Immunocompromised or pregnant patients should not receive live virus vaccines.

Cholera—The risk of cholera to tourists is very low and cholera vaccines, which are prepared from killed bacteria, have limited effectiveness. Cholera vaccination is not generally recommended for tourists, but some countries require a single dose within six months of entry for travelers arriving from infected areas. These areas, identified by the World Health Organization, are listed in the biweekly *Summary of Health Information for International Travel,* which is available from the Division of Quarantine, CDC, Atlanta, GA 30333.

Hepatitis B—Hepatitis B vaccine is not ordinarily recommended for travelers, except for medical personnel whose work could require handling of body fluids, or people who expect to have sexual contacts in areas such as

---

Reprinted with permission from *The Medical Letter,* Vol. 29, June 5, 1987.

Southeast Asia or sub-Saharan Africa, where hepatitis B is highly endemic. Hepatitis B vaccine is less effective when injected into the gluteal area; it should be injected into the deltoid (Morbid Mortal Weekly Rep, 34:105, 1985). Antibody tests for susceptibility to hepatitis B are now widely available.

Japanese encephalitis—Vaccination against Japanese encephalitis, an uncommon but serious viral disease transmitted by mosquitoes, may be advisable for summer travelers to rural areas in tropical Asia, including the People's Republic of China, Korea, Taiwan, Thailand, India, Nepal, and the Philippines (T Umenai et al, Bull WHO, 63:625, 1985). The vaccine, a formalin-inactivated, highly purified extract of infected mouse brain manufactured in Japan, currently can be obtained from a regional CDC vaccination center (call 303-221-6400).

Measles—Medical Letter consultants suggest that anyone born after 1956 who did not receive measles vaccine (after their first birthday) and does not have a physician-documented history of infection should receive a single dose of measles vaccine.

Meningococcal disease—Meningococcal vaccine (inactivated) is recommended only for tourists traveling to areas where epidemics are occurring. When these areas are identified, the CDC usually asks all health departments, travel agencies, airlines, and shipping companies to notify prospective travelers.

Polio—Adult travelers to tropical or developing countries who have not previously been immunized against polio should receive a primary series of inactivated, polio vaccine (IPV), unless protection is needed within four weeks; if it is, a single dose of trivalent (live) oral polio vaccine (OPV) is recommended, but OPV rarely can cause vaccine-induced polio, particularly in previously unimmunized adults (BM Nkowane et al, JAMA, 257:1335, March 13, 1987). Previously unimmunized children should receive a primary series of OPV. Travelers who have previously completed a primary series should receive a booster dose of OPV or IPV (Morbid Mortal Weekly Rep, 35:671, 1986).

Tetanus and Diphtheria—Whether traveling or not, everyone should receive a primary series of immunizations against tetanus and diphtheria and a tetanus-diphtheria toxoid booster injection every 10 years.

Typhoid—Parenteral typhoid vaccine, prepared from killed bacteria, is recomended for travel to rural areas of tropical countries, where typhoid tends to be endemic, or any area where an outbreak is occurring. A primary series consists of two doses given at least four weeks apart. The vaccine, which is not fully protective, often causes one to two days of pain at the site of injection, sometimes accompanied by fever, malaise, and headache. A new oral vaccine, not yet commercially available, was recently reported to be equally effective and better tolerated (MM Levine et al, Lancet 1:1049, May 9, 1987).

Yellow Fever—Yellow fever vaccine, an attentuated live virus vaccine prepared in eggs, is recommended for travel to rural areas of countries in the yellow fever endemic zones, which include most of tropical South America and most of Africa below 15 degrees latitude North and above 15 degrees South (Morbid Mortal Weekly Rep, 32:679, 1984). Patients can be vaccinated for international travel only in centers designated by local or state health departments. Boosters are given every 10 years. Some countries in Africa require a certificate of yellow fever vaccination from all entering travelers; other countries in Africa, South America, and Asia require evidence of vaccination from travelers coming from infected or endemic areas.

MALARIA CHEMOPROPHYLAXIS—Adults and children who weigh more than 50 kg traveling to areas where malaria is endemic should take 500 mg (300 mg base) of chloroquine phosphate (*Aralen;* and others) once weekly, beginning one week before arrival and continuing for six weeks after leaving the endemic area. Children weighing less than 50 kg should take 5 mg (base)/kg weekly.

In areas with chloroquine-resistant *P. falciparum,* the combination of 25 mg of pyrimethamine with 500 mg of sulfadoxine (*Fansidar*—Roche) once a week (in addition to chloroquine) usually provides effective prophylaxis, but can cause severe, sometimes fatal cutaneous reactions such as Stevens-Johnson syndrome (RD Pearson and EL Hewlett, Ann Intern Med, 106:714, May 1987). *Fansidar* should be used only for long-term (more than three weeks) travel to areas with intense chloroquine resistance, such as East and Central Africa, Papua New Guinea, Irian Jaya, the Solomon Islands, and Vanuatu. Short-term travelers to these areas can be given a single treatment dose of *Fansidar* (3 tablets for adults) to be taken if they develop a febrile illness and medical care is not immediately available. In general, travelers to areas of chloroquine resistance in Asia and South America are at much lower risk and should take chloroquine alone, unless they will have extensive rural evening and night exposure to mosquitoes. Use of insect repellents containing at least 30% DEET (Medical Letter, 27:62, 1985), sprays, nets, and screens for personal protection against mosquitoes is advsiable in all areas where malaria occurs. *P. falciparum* resistant to both chloroquine and *Fansidar* has been reported in Southeast Asia (notably Thailand), the Amazon region of Brazil, and East Africa (KD Miller et al, J Infect Dis, 154:689, 1986); in such areas doxycycline, 100 mg once daily, can be used.

For prevention of attacks after departure from areas where *P. vivax* and *P. ovale* are endemic, which includes most areas where malaria is found except Haiti, some experts prescribe primaquine phosphate 26.3 mg (15 mg base) for adults (0.3 mg/kg base for children) daily during the last two weeks of chloroquine prophylaxis or for two weeks afterward. Primaquine can, however, cause hemolytic anemia in patients with glucose-6-phosphate dehydrogenase (G-6-PD) deficiency; screening for this disorder should be done before prescribing the drug. Primaquine is contraindicated during pregnancy.

Table 1

COUNTRIES WITH A RISK OF MALARIA*

AFRICA
Algeria[1]
**Angola
**Benin
Botswana[2]
Burkina Faso (formerly Upper Volta)
**Burundi
**Cameroon
**Central African Republic
Chad
**Comoros
**Congo
Côte d'Ivoire (formerly Ivory Coast)
Djibouti
Egypt[3]
Equatorial Guinea
**Ethiopia[4]
**Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
**Kenya[5]
Liberia
Libyan Arab Jamahiriya[6]
**Madagascar[7]
**Malawi
Maii
Mauritania[8]
Mauritius[3,9]
Morocco[3,10]
**Mozambique
**Namibia[11]
Niger
**Nigeria
**Rwanda
Säo Tomé and Principe
Senegal
Sierra Leone
Somalia
**South Africa[3,12]
**Sudan
**Swaziland[13]
**Tanzania, United Republic of
Togo
**Uganda
**Zaire
**Zimbabwe

AMERICAS
Argentina[14]
Belize
**Bolivia[3,15]
**Brazil[16]
**Colombia[3]
Costa Rica[3]
Dominican Republic
**Ecuador[17]
El Salvador[3]
**French Guiana
Guatemala[18]
**Guyana[19]
Haiti
Honduras[20]
Mexico[21]
Nicaragua[22]
**Panama[3]
Paraguay[23]
**Peru[24]
**Suriname[3]
**Venezuela[3]

ASIA
Afghanistan
**Bangladesh[25]
Bhutan[26]
**Burma[3]
**China, People's Republic of[27]
**India
**Indonesia[28]
Iran[3]
Iraq[29]
**Kampuchea, Democratic (formerly Cambodia)
**Lao People's Democratic Republic[30]
**Malaysia[31]
Maldives[32]
Nepal[3]
Oman
**Pakistan
**Philippines[3]
Saudi Arabia[33]
**Sri Lanka (formerly Ceylon)[14]
Syrian Arab Republic[3]
**Thailand[3]
Turkey[35]
United Arab Emirates[36]
**Viet Nam[3,37]
Yemen Arab Republic[38]
Yemen, Democratic[39]

OCEANIA
**Papua New Guinea
**Solomon Islands
**Vanuatu (formerly New Hebrides)[40]

* Adapted from *Health Information for International Travel*

** *Countries with known chloroquine-resistant P. falciparum*

REFERENCES

1. Very limited risk in Sahara region.
2. Northern part of country only.
3. No risk in urban areas.
4. No risk in Addis Ababa or at altitudes higher than 2,000 meters.
5. No malaria risk in city of Nairobi or in highlands above 2,500 meters.
6. Very limited risk in southwest area of country.
7. In general, coastal areas; limited risk in Antananarivo, Andramasina, Antsirabe and Manjakandriana.
8. No risk in northern areas: Dakhlet-Nouadhibou, Inchiri, Adrar and Tiris-Zemour.
9. No risk on Rodrigues Island.
10. Very limited risk in rural areas of coastal provinces.
11. Ovamboland and Caprivi Strip.
12. Rural areas in north, east, and western low altitude areas of Transvaal and Natal ocast.
13. Risk in all lowland areas.
14. Rural areas near Bolivian border only.
15. Except Oruro Dept. and Provinces of Ingavi, Los Andes, Omasuyos, and Pacajes, and southern and central Potosi Dept.
16. No malaria risk in urban areas except in interior Amazon River region.
17. No risk in urban areas except in Esmeraldas, Manabi, El Oro, and Guayas Provinces; no risk in Galapagos Islands.
18. Rural areas only; no risk in Guatemala City and central highlands.
19. Rural areas of Rupununi and Northwest regions.
20. Rural areas only.
21. In general, no risk in urban areas; limited risk in major tourist resorts along Pacific and Gulf coasts (but chemoprophylaxis is not recommended).
22. No risk in urban areas except in outskirts of some towns (including Managua).
23. Generally only rural areas bordering Brazil.
24. No risk in Lima or highland tourist areas.
25. No malaria risk in Dhaka City.
26. Rural areas of districts bordering India.
27. No risk of malaria on usual tourist routes.
28. In general, rural areas only, except high risk in all areas of Irian Jaya. No risk in resort areas of Bali.
29. All areas in northern region.
30. No risk of malaria in Vientiane.
31. Risk generally in rural areas only; no risk in most urban and coastal areas except Sabah.
32. Rural areas only, no risk in Male Island, Kaafu Atoll, or resort areas.
33. Except eastern, northern and central provinces; high altitude areas of Asir Province and urban areas of Jeddah, Mecca, Medina, and Taif.
34. Except Colombo.
35. Cukorova/Amikova areas and southeast Anatolia.
36. No risk in cities of Dubai, Sharjah, Ajman, Umm al Qaiwan, and Emirate of Abu Dhabi.
37. Except in the deltas.
38. Except Hajja and Sada provinces.
39. Except Aden and airport perimeter.
40. No risk on Fortuna Island.

CNA has been helping physicians control risks for years.

Controlling risks is one effective way to help you and the CNA Insurance Companies contain the increasing cost of medical malpractice insurance. Together, through the Connecticut physicians loss control seminars, we are making a difference.

The seminars are designed to help you avoid claims by improving your practice. And we'll demonstrate the proper steps in handling a claim. You'll receive up-to-date information from local physicians, defense attorneys specializing in medical malpractice and CNA claims specialists.

You'll earn a premium credit for completing the workshop. And in some cases, you'll earn CME credits, too. Learn more about controlling risks. Contact the CNA program administrator today.

A. A. W. Physicians Plan, Inc.
225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The CNA Physicians Protection Program is underwritten by Continental Casualty Company, one of the CNA Insurance Companies

CNA
For All the Commitments You Make®

View from the Hill

JAMES E. BRYAN

What kind of doctor will (or should) we be producing in America in the years immediately ahead? This question has been asked recently by the editors of two influential medical journals: Arnold S. Relman, M.D., the highly regarded veteran editor of *The New England Journal of Medicine* and C. Burns Roerig, M.D., the newly designated editor of *The Internist*, official journal of the American Society of Internal Medicine (ASIM).

Dr. Relman told a recent conference of medical writers that the profession "needs help from society to decide what kind of doctors people want—but is getting conflicting signals from them." Dr. Roerig's editorial question was "Are We Producing the 'Right' Kind of Doctor?"

Dr. Relman evidently hopes or expects that the needs of patients and the welfare of society will shape and motivate tomorrow's physicians, while Dr. Roerig appears to be more directly concerned whether future physicians will be able to function in tomorrow's professional and social environment, and deal with today's chaotic medical-social scene.

In essence, Dr. Relman asks what sort of doctor can most effectively treat both the ills of patients and the ills of contemporary society—which he finds equally, if not more perplexing. Dr. Roerig, on the other hand, seems more directly concerned whether tomorrow's physicians will find career satisfaction and appropriate compensation in the astringently competitive and commercial social and professional trend of medicine's future.

In either case, the neophyte physician confronts a social workplace inundated with complex economic problems, acute unmet human needs, incipient intergenerational conflicts and lethal deficts spreading through the system. The social atmosphere is that of the Hobbesian scene: a "war of all against all."

Today's prospect for the new doctor is very different from that which greeted older colleagues. The medical scene is rougher, tougher, less relaxed, more money-minded and more starkly competitive than ever before and, at the same time, faces an aggressively litigious society.

How does ASIM define or identify the "right" kind of physician? Perhaps by defining the population and setting in which the physician will serve. The new doctor may, as *The Internist* suggests, start out "as a salaried triage officer in a surburban HMO." Wherever the debut, the questions are many and complex: "Is this the right job for me?" "Am I the right physician for this job?"

Perhaps the appropriate question would be: "Is society creating the 'right' jobs for the 'right' kind of physicians?" Today's medical schools function under relentless pressures to make every phase of producing a physician more (cost) efficient: the four-year collegiate course and the residency are foreshortened: "humanities" courses are discouraged, and candidate physicians must define for themselves the kind of doctor they can afford to become.

One dearly hopes (and with reasonable confidence in most cases) that the quality of a medical education in one school, as compared with that in another, is not perceptibly related to the difference in the cost of attendance between the two schools. In Maryland, the annual tuition fees at a private university medical school have increased from $3,500 to $12,600 in a decade. Whereas, at a state-supported medical school in the same city, the tuition fee increased from $1,500 to $5,250 in the same period. The total estimated costs of a medical education at the private school are $91,000; at the state-supported institution, they total $61,000.

Today, 88 percent of medical students throughout the country receive financial aid: almost 39 percent of medical school graduates are $30,000 or more in debt, and 5 percent in 1986 graduates owed $60,000 or more. High interest rates and immediate pay-back requirements pose serious debt-service problems for many.

Such financial difficulties have social as well as individual consequences. The high cost of a medical education is found to drive some graduates into more remunerative specialties than they would otherwise have selected. The enrollment of baccalaureate candidates in courses providing broad, humanistic backgrounds is discouraged in favor of science and math (needlessly in some cases).

Concern is expressed—with good reason—that excessive costs of medical training are discouraging enrollment of young people who offer the diverse backgrounds in social and economic affairs so desperately needed in modern

---

JAMES E. BRYAN, Washington Correspondent, *American Family Physician*.

Reprinted from *American Family Physician*. Copyright 1987 by American Academy of Family Physicians.

medicine. Interest in a medical career had decreased by 50 percent or more in many colleges.

Medical schools are receiving 30 percent fewer applicants for enrollment than a decade ago. The ratio of applicants to enrollment is expected to diminish to "1.5" applicants per medical school "place" by 1990, and they will all come from affluent families. Ironically, these estimates assume that the glut of physicians which was forecast for the 1990s will be realized.

The "growing disaffection" of today's physicians for the emerging corporate structure of health care, for intensified governmental regulation and for the continuing plague of malpractice litigation, are cited as prime factors in the declining interest among today's baccalaureates in entering a medical career.

But let us return to Dr. Relman's question: What guidance is forthcoming from society as to the "kind of doctors people want"? A special supplement, "The Public Duties of the Professions," was incorporated in the February 1987 *Hastings Center Report*, published by the Hastings Center, Hastings-on-Hudson, N.Y., a nonpartisan "think tank" highly regarded for its research, educational activity and publications on "ethical issues in medicine, the life sciences and the professions." The center names law, medicine, corporate management, journalism, social work and public administration as "professions"– all of which, except law and medicine, have "entered the ranks of professions in the 20th century."

The comments that follow are chiefly my own reflections on a first reading of this highly engaging supplement. Interestingly, the chapter on "Medicine: the Endangered Patient-Centered Ethic" is authored by Marcia Angell, M.D., senior deputy editor of *The New England Journal of Medicine*.

In this, "the age of the professional," the traditional professions, such as law and medicine, gain prestige and power by virtue of acquiring more specialized knowledge and more complex technology. Greater professional prestige calls for a "stronger sense of ethical responsibility." Professional ethics "should express the moral bond linking the professions, the people they serve and the society as a whole."

Professionalism, therefore, is the physician's strongest bond of empathy and mutual interest not only with patients and the community but with American society and with colleagues who share the professional ethic. But true professionalism does not require the physician to display a solemn pose of rectitude and infallibility.

That many patients, too, have shrugged off the old-time attitude of solemn deference, or have even abandoned some of the niceties of genteel etiquette, in dealing with their physicians, should not be construed as a loss or lack of respect. Some observers trace these more relaxed, egalitarian attitudes in the patient/doctor relation to the social upheavals of the '60s and '70s, when the rights of clients were emphasized, countering the authority and paternalism of professionals in law and academia, as well as in the medical encounter.

If the science of medicine is not to outweigh the art and human skills of the physician, then patients must learn better to appraise themselves, to hear their physician's tones and overtones and, perhaps most important of all, to be alert to the wholesome, persistent bias to health within their own bodies and personae.

"Ethical standards are the linchpins of public trust in a profession…its moral dimension…They transform the career of selling services into the calling of providing service." But, the Hastings report reluctantly concedes that "public duty remains low on the list of ethical priorities in most professions." In some instances, the public interest asserts itself to attain a balance with the private interest. Thus, physicians are reminded of the need to try to keep health care costs low without compromising the welfare of individual patients.

The Hastings Report asks: "How may the professions avoid degenerating into mere special interest groups engaged in a socially harmful struggle for privilege, power and position?" In partial response to this question, your correspondent observes that medicine – inescapably and intrinsically the most professional of all professions – is challenged today, as never before in living memory, to lead the society it serves, by precept and example, to inform and inspire once again our sense of common purpose.

Thus, physicians will be integrated as individuals and as professionals in service to their patients, to their profession and to their society.

HANS H. NEUMANN, M.D.
1911 - 1987

In this issue of *Connecticut Medicine* there are two book reviews and an editorial by Dr. Hans H. Neumann. He had brought them with him to an Editorial Board meeting on Thursday, 21 May, remarking as he handed them to me, “Don’t use them if you don’t care to—and you don’t have to tell me why if you decide to throw them out.” At the end of the meeting he reminded me, “Remember, toss them in the wastebasket if you don’t think they’re appropriate.”

Two days later, on 23 May, Dr. Neumann died at Norwalk Hospital after an apparent cardiac arrest at his home in Wilton.

Hans H. Neumann was born in Vienna, 29 September 1911, and received his medical degree at the University of Vienna Medical School in 1932. He subsequently emigrated to New Zealand where he served in the Public Health Service, worked for four years as physician in Western Samoa as part of the Pacific Island Service where he ministered to the needs of some 70,000 Polynesians and was responsible for a leper colony.

After World War II he moved to Long Island, practiced family medicine, and worked in medical and dental research on the staff of Columbia Presbyterian Hospital. During the next two decades he published over 25 papers on dental caries, as well as on infectious diseases, especially sexually transmitted diseases, nutrition, drug abuse, and medical economics.

In 1967 he was appointed Director of Preventive Medicine of the City of New Haven Health Department, a post which he held until retirement in 1983. Throughout his career he took a lively interest in issues of public health and disease prevention, writing and speaking for both professional and lay audiences. His special interest was in communicable disease, especially sexually transmitted diseases. His last book, *Guide to the New Sexually Transmitted Diseases,* will be published in September by Acropolis Books.

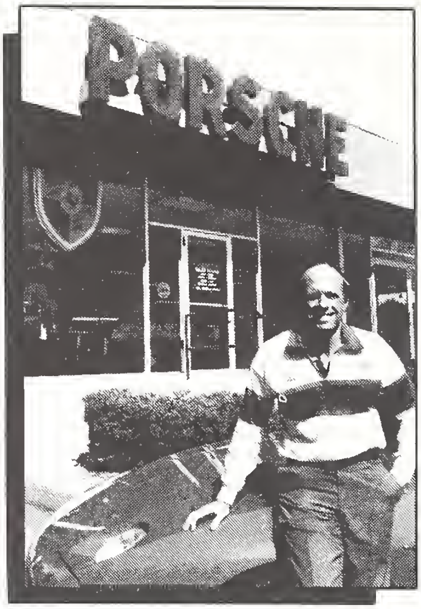
In 1973 he was appointed to the Editorial Board of *Connecticut Medicine,* and served the Journal faithfully until his death, not only by his work on the Board, but by contributing essays, editorials, and scientific articles. There were 17 in all, in about as many years, and they reveal his wide-ranging interests in medicine, public health, and practical preventive medicine. His first contribution was “Heroin and Public Health,” in 1969; then came “The ‘Semi-Private’ Room: Semi-Barbaric?” in 1974, followed by a series of practical articles on infectious diseases, drug abuse, and community mental health, interspersed with essays such as “Modern Age Cannibalism: Organ Transplants Via the Oral Route?,” (1975), and “The Social Kiss: A Practice Worth Discouraging?” (1984). We shall miss these contributions which, however, formed only a small part of his work; his bibliography totalled over 150 articles and three books written both for the scientific and lay press.

His colleagues will remember Dr. Neumann for his tireless work on councils and boards dedicated to public health and the equitable provision of medical services; they may recall that he held firm convictions and defended them well, not always with regard for their current popularity, but always with sensitivity. “And he was generally right,” said one of his public health colleagues, “but not always!”

He served as president of the Mental Health Planning Council of South Central Connecticut; was a member of the Mayor’s Task Force on Drugs in New Haven; on the Advisory Committee of the Yale University Cancer Center; vice president of McGee House for the Rehabilitation of Alcoholics in Connecticut; on the Medical Advisory Committee of Planned Parenthood of Connecticut; special consultant on population problems to the University of Australia (Canberra) Institute for Pacific Studies; chairman of the Committee on Medical Care Planning of the New Haven Medical Association; member of the New Haven Mayor’s Task Force on Problems of Aging; a member of the Executive Committee of the TB and Respiratory Disease Association of South Central Connecticut; and a member of the Mental Health Planning Council of South Central Connecticut.

His wife of 25 years is an author who writes under her maiden name, Syliva Simmons; a book which she co-authored is the subject of Dr. Neumann’s review in this issue. We can share in only a small way the loss which she and their family have sustained; our sympathies are with them.

R.U.M.



Avon
AVON MOTOR CARS
PORSCHE • AUDI • VOLKSWAGEN

TOM
WHIDDEN
Tactician Stars & Stripes
Winner
1987 America's Cup

"Join Me
And A Select Few In Europe
This Fall When We Pick Up Our
New 1988 Porsche's!"

Save up to $5,000.* on your 1988 Porsche with Avon Motor Cars' "Tyrolean Wunderfest" Holiday. Experience the thrill of taking possession of your new Porsche in Germany. Tour the factory, see new Porsche's being custom-built before your eyes. Red Line yours on the Autobahn and tour Porsche's Weissach proving ground. Grand tour around Germany with Tom Whidden while sampling some of Germany's finest restaurants.

Where else can you save money on a new 1988 Porsche and experience Germany's greatest attractions at the same time… where else, but Avon Motor Cars.

PORSCHE
STUTTGART

FOR FURTHER INFORMATION CONTACT:
TOM WEAVER

*Save up to $5,000 on selected models only.

"Where You Buy Is As Important As What You Buy!"
AVON AUTO BODY • **262 West Main St., Avon, CT • 678-0880 • 678-1594** • NOVA LEASING

Editorials

Antibiotic Prophylaxis for Endocarditis

The case report by Morgera[1] in this issue of *Connecticut Medicine* calls attention to an area of controversy in medicine. The issue of whether or not to provide prophylaxis during gastrointestinal procedures, in order to guard against the production of bacterial endocarditis in the face of the well established incidence of bacteremias noted with these procedures, is but one example of the controversy associated with the use of antibiotic agents to prevent infections in general and endocarditis in particular.

We have come a long way in recognizing the value of antibiotic drugs in preventing infections in medicine and surgery since the initial recommendations for antibiotic prophylaxis aimed at preventing rheumatic fever as a sequel to streptococcal pharyngitis. Problems associated with bacteremias occurring during gastroenterologic procedures are well documented. Botoman and Surawicz[2] have reviewed 40 prospective studies of bacteremia with gastrointestinal procedures and have found a low incidence ranging from approximately 2% to 5% for sigmoidoscopy, colonoscopy, and endoscopic retrograde cholangiopancreatography and esophagogastroduodenoscopy. On the other hand, it appears that there is substantially greater incidence of bacteremia associated with esophageal dilatation (45%) and variceal sclerotherapy (31%). The total number of patients studied is relatively small but it appears that pathogenic organisms such as *Steptococcus viridans, Staphylococcus aureus,* and *Staphylococcus epidermidis* regularly can be isolated and pose a significant threat to individuals undergoing at least the latter two procedures when there are underlying cardiac valve abnormalities. On the other hand, the cases of endocarditis associated with gastrointestinal procedures reviewed by these authors indicate that the association of bacteremia and endocarditis is minimal. Also a number of the case reports of such an association are less than convincing. The total number of reported cases is small and, including the report in this issue of *Connecticut Medicine*, numbers approximately one dozen.

Given the relatively low frequency of endocarditis, and considering the large number of gastrointestinal procedures performed, some individuals, particularly British investigators,[3,4] seem to feel that no antibiotic prophylaxis should be recommended. They reason that neither the risk of endocarditis nor the effectiveness of prophylaxis has been established. Furthermore, a survey by Meyer[5] seems to indicate that only a minority of 123 directors of gastroenterology teaching programs used prophylaxis against infective endocarditis under any circumstances. When prophylaxis was used, it was often inappropriate, and did not follow American Heart Association recommendations.

Current issues with respect to the prevention of endocarditis have recently been reviewed by Durack[6] with a recommendation that prophylactic antibiotics should be restricted to those situations in which both the procedure and the underlying cardiac condition seem to pose substantial risk for infection. Endoscopic sclerotherapy for esophageal varices performed in individuals with underlying cardiac valve abnormalities is an example of one such situation cited by Durack.

In an update on prophylaxis for infective endocarditis, Kaye[7] has made the point that most cases of endocarditis are not preventable with antimicrobial prophylaxis, and that about half of the patients who develop endocarditis do not have recognized or recognizable predisposing cardiac lesions.

He sites calculations which indicate that less than 10% of cases of endocarditis are theoretically preventable. He concludes that, despite the absence of data to show the effect of prophylaxis in decreasing endocarditis, and despite lack of information about cost-benefit, it is important to apply prophylaxis in individual patients with significant cardiac lesions who are undergoing procedures with a high risk of bacteremia. Again, esophageal dilatation and sclerotherapy for esophageal varices are given as examples of situations where prophylaxis is warranted.

When it comes to the question of which antibiotic drug to use for prophylaxis, again there is a great deal of uncertainty about which agents to select and even how they work. Bernard,[8] for example, suggests that vancomycin prophylaxis in experimental *Streptococcus sanguis* bacteremia may work by inhibition of bacterial adherence rather than by actual bacterial killing. Kaye[7] reviews the recently revised American Heart Association recommendations, the cardiac conditions for which prophylaxis is recommended, and the procedures for which prophylaxis is indicated. He also summarizes the recommended

---

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

regimens for adults having gastrointestinal tract procedures, as well as other procedures such as genitourinary tract procedures, dental, or respiratory tract procedures. In the case of gastrointestinal tract procedures, where prophylaxis is recommended, ampicillin 2 g intramuscularly or intravenously, plus gentamicin 1.5 mg per kilogram of body weight intramuscularly or intravenously given one half to one hour before the procedure with an optional follow-up dose given eight hours later, is the recommendation. However, Kaye suggests that consideration be given to using a single 3 g dose of amoxicillin for dental, genitourinary and gastrointestinal tract procedures in patients who are at risk and who have natural cardiac valves. Individuals who are allergic to penicillin or who have prosthetic valves would require vanocomycin, 1 g intravenously, given over one hour, plus gentamicin 1.5 mg per kilogram of body weight intramuscularly or intravenously one hour before the procedure, possibly repeated once 8 to 12 hours later. The British[4] have recommended a single dose of amoxicillin 3 g orally, given just before procedures on the oral cavity, genitourinary or gastrointestinal tracts, except in instances of penicillin allergy or prior cardiac valve surgery, where vancomycin would be preferred.

Whether or not prophylaxis has been given, there should be a period of observation following sclerotherapy or other gastrointestinal procedures. Starkebaum et al[9] have concluded that the incubation period for subacute bacterial endocarditis is often shorter than generally realized and that procedures associated with significant risk of bacteremia should be followed with an eye toward the potential development of endocarditis during the first two weeks following the procedure. Given the uncertainty of the effectiveness of prophylaxis, as well as the high incidence of bacteremia with procedures such as sclerotherapy, increasing attention should be directed toward the potential for the development of endocarditis by those practitioners utilizing this and other diagnostic gastroenterologic procedures.

David P. Johnson, M.D.

Middletown, CT

REFERENCES

1. Morgera RV. Antibiotic Prophylaxis Prior to Esophageal Sclerotherapy. Connecticut Medicine 1987.
2. Botoman VA and Surawicz CM. Bacteremia With Gastrointestinal Endoscopic Procedures. Gastrointestinal Endoscopy 1986, 32:342-346.
3. Shorvon PJ, Eykyn SJ, Cotton PB. Progress Report: Gastrointestinal Instrumentation, Bacteremia, and Endocarditis. GUT 1983, 24:1078-1093.
4. Simmons NA et al. The Antibiotic Prophylaxis of Infective Endocarditis. Report of a Working Party of the British Society of Antimicrobial Therapy. Lancet 1982, 2:1323-6.
5. Meyer GW. Prophylaxis of Infective Endocarditis During Gastrointestinal Procedures: Report of a Survey. Gastrointestinal Endoscopy 1979, 25:1-2.
6. Durack DT. Current Issues in Prevention of Infective Endocarditis. The American Journal of Medicine 1985, 78(suppl 6B):149-156.
7. Kaye D. Prophylaxis for Infective Endocarditis: An Update. Annals of Internal Medicine 1986, 104:419-423.
8. Bernard JP, Francioli P, Glauser MP. Vancomycin Prophylaxis of Experimental Streptococcus Sanguis. Journal of Clinical Investigation 1981, 68:1113-1116.
9. Starkebaum M, Durack D, Beeson P. The Incubation Period of Subacute Bacterial Endocarditis. Yale Journal of Biology and Medicine 1977, 50:49-58.

Free Syringes for Addicts

Programs advocating free syringes for drug addicts are now being widely discussed as a means of preventing the spread of AIDS. There are, seemingly, obvious benefits to such programs. But we must weigh these against the potential adverse results of such a move.

A free supply of "the works" may increase drug abuse by detracting from its dangers. It makes the drug involvement appear "safe" when fresh needles are used. And it removes the fear of AIDS, currently a deterrent for the occasional or "new" drug user. Those who "do" drugs other than with needles, may find it tempting to start injecting.

Furthermore, providing clean needles does not assure their proper use. They would need to be on hand at the proper time—when the drug is obtained. Otherwise, any available needle will do, clean or dirty.

Providing free needles also implies that the maintenance of a drug habit is tolerated by the medical community; surely it does not encourage addicts to abstain or seek treatment. Such programs do more than condone; they actively assist the I.V. user of drugs in perpetuating his addiction.

It would be exceedingly difficult to measure the effects of any program that provided clean needles and syringes. Reports on the results in European centers that have tried such schemes are contradictory. A free needle exchange might or might not reduce the spread of AIDS. But it could very well boost the number of I.V. drug users.

Even done on an experimental basis, the pluses and minuses of such a test program would be difficult, if not impossible, to measure in this population segment. On balance, the scheme appears to be one that is fraught with downside possibilities. Emphasis should, instead, be put on efforts and funding for education and help for those who need to be weaned from drugs. Moreover fear of AIDS is likely to have a salutary effect on potential drug users.

Hans H. Neumann M.D.

Wilton, CT

Correction: The Editor's face is red; many of you must have noticed what only one reader gently drew to my attention: Dr. Oliver Wendell Holmes, not Henry Wadsworth Longfellow, wrote "The Wonderful One-Hoss Shay," quoted in my Editorial last month. We have all known that since grade-school days—a true *lapsus mentis*!

The President's Page

Tort Deform

As I finish my first month as President of the Connecticut State Medical Society, I must reflect on what I've done since my installation and on what must be done. Regarding the former, there have been trips to the "People's Republic of Massachussetts," where I was a guest at the annual meeting of the Massachussetts Medical Society; to Harrisburg, Pennsylvania, to speak to the Pennsylvania State Medical Society's Board of Trustees about our victory over the Mandatory Medicare Assignment forces; and to Colorado to attend the medical insurance industry's annual meeting to hear what the medical liability climate was like throughout the United States and overseas.

Seemingly, the matter of most concern to me was at my last meeting, out West, where the main topics were related to insurance and tort reform. The last made me think about our Connecticut Tort Reform of 1986. In the past two years, tort reform has represented the wave of the future—the method to control the constantly rising insurance liability premiums that not only physicians, but property and casualty and automobile insureds were being asked to pay. The precedent-setting legislation that the proud Connecticut legislators passed in 1986 was acclaimed as the second best in the United States—lacking only the "cap" that would have made it as good as that of California's. It was legislation designed to eventually give some relief to the premium paying citizens of Connecticut.

For those of you who don't remember the tort reform that went into effect on 1 October 1986, only eight short months ago, I'll summarize the highlights:

1) *Collateral Sources* was enacted to prevent so called "double dipping," in which expenses and awards previously paid by others were not allowed to be known in determining the award. Under this change the award was to be reduced by the amount paid by other sources, such as hospital and medical bills already paid by insurance.

2) *Joint and Several Liability* was modified so that a party who had a certain percent of the liability had only to pay his percentage and not be forced to pay a higher amount of the award in the event that others liable had either no or limited insurance.

3) *Contingency fees* were to be controlled to eliminate the complaints that a great percentage of the huge awards did not accrue to the accounts of the aggrieved. The scale was 33.3%, 25%, 20%, 15% of successive layers of $300,000, up to 10% of any award over $1,200,000.

4) *Structured verdicts* were directed for awards over $200,000 to make sure that sufficient funds were available in the future to take care of the real needs of the aggrieved, and not to have cases of the lump sum awards being dissipated over time to the disadvantage of the aggrieved.

5) *Frivolous suits* were discouraged by conditions being imposed if it were found that an action was brought without merit or with malicious intent.

6) *Immunity of officers of non-profit tax exempt organizations* was provided if they acted in good faith.

7) Provision was made to define and control the use of *expert witnesses*.

8) *Certificate of Merit* was required, and

9) a *Study of non-economic damage* was to be undertaken by a Task Force of the Judiciary Committee, which was to have been reported by 1 January 1987—which has come and gone.

As said, all that was lacking to make it equal or surpass California's reform was a "cap" on damages.

It was with a great feeling when we went to Lloyd's of London in June of '86 to negotiate medical liability reinsurance to be able to tell the Lloyd's syndicates that our legislature had just passed such landmark legislation, and that the Governor was due to sign it any day. They were impressed enough by that news that they gave us better terms than we had been led to expect when we went over. However, they gave us the caveat that it would probably take about three years for the effects of tort reform to trickle down in the form of lower reinsurance rates. They also suggested that we work for a "cap."

Little did we realize that there were forces back in the States already planning for the undoing of the reform, regardless of its consequences to the citizens of Connecticut. Those self-serving interests, to the consternation of their peers, began to plan for the defeat of those legislators who voted for tort reform. They began to amass a large "war chest" of money to spend to achieve that end. In some cases, they allied themselves with those forces who were dedicated to enacting those policies effected by our neighbor to the north which would take away your right to practice your profession as guaranteed by the Constitution. CSMS, becoming aware of the impending outcome, called out for your help to re-elect those who had the citizens of Connecticut in mind when they voted for tort reform. That help was not only to be in the form of money, primarily from your COMPAC contributions, but also in time and energy contributed to them, and informing the public through your offices of what was occurring. Unfortunately, only 15% of CSMS membership responded. It was not enough. When the elections were over, those dedicated to tort reform, and its enhancement, were defeated, and the forces dedicated to the dismantling of tort reform prevailed.

This dismantling of certain provisions of the tort reform has taken the following form:

The "Collateral Source" bill recently enacted specifically eliminates the requirement that settlements be deducted as collateral source.

The "Joint and Several" was changed to require solvent defendants in negligence cases to pay plaintiffs the entire amount of uncollectable economic (but not total) damages attributable to an insolvent defendant instead of only paying a portion.

The "Contingency Fees" were expanded to include property damage cases and, in addition, the new bill specifies that (1) the fee be based on damage awards and settlements actually received; (2) costs, other than ordinary overhead and expenses, can be charged in addition to the contingency fee; and (3) any contingency fee contract involving personal injury, property damages, or wrongful death must comply with all applicable rules governing attorneys adopted by the Superior Court judges.

The Bill eliminates the requirement that future damages in excess of $200,000. be paid in periodic, as opposed to lump sum, payments in personal injury and wrongful death cases if the parties cannot agree to an alternative.

While Connecticut legislators were dismantling our tort reform, three more states, Arizona, Idaho, and New Mexico, enacted new tort reform legislation.

It is unfortunate that our legislators did not read the General Accounting Office report of 24 April 1987 directed by the United States Congress regarding medical liability. This report further documented conclusions that had been reached by observers of the medical liability scene in recent years. For example, the report substantiated the fact that large claims represented only a small percentage of those filed (9%) but consumed 61% of total payouts—a fact that the health community and the liability insurance industry may have known, but that to the Congress may have been news.

In California, it is anticipated that a full-scale assault on that state's Medical Injury Compensation Act (MICRA) will take place in the form of the placing of a 1988 initiative on the ballot to scuttle the existing tort reform which has had a moderating effect on medical malpractice problems in the state. The California Medical Association recently took two steps to counter this by approving a $30 dollar dues increase for 1988 and seeking voluntary $250 dollar contributions from its members.

Where we do go from here in Connecticut? By not allowing the Tort Reform Act of 1986 to have time to show its positive effects, there is no doubt that the citizens of Connecticut will, in the end, have to pay. And so will the physicians. We in the medical community should try to inform our patients as to the impact of the tort de-form; we should try to inform our legislators of the impact of their actions. We should realize that it will take money to go back again, probably with the support of the Small Business and Industry Association (SBIA) and the insurance industry, and restore the key elements of the Tort Reform of 1986 and proceed from there to other measures to reduce the problems involved in the liability insurance field.

There is one irrefutable fact—UNLESS PROPOSED CHANGES (IN TORTS) EITHER LIMIT LOSS AMOUNTS OR REMOVE UNCERTAINTIES, THEY WILL HAVE NO MEANINGFUL IMPACT ON THE PROFESSIONAL LIABILITY PROBLEM.

James P. Orphanos, M.D.
President

Reflections on Medicine

Revisiting Dr. Schweitzer

ROBERT U. MASSEY, M.D.

The columnist, James J. Kilpatrick, Jr., referred recently to the spate of articles in *Time* and other news magazines on the decline of morality in high and low places; he called these articles *thumbsuckers*, reminded us that they have appeared in every generation, almost in every decade, and that a good case could be made for the hypothesis that, in fact, morality has been generally improving.

A scientist would demand to see the data, and, after examining it, decide that the matter might best be left alone. Beginning with ancient authorities, including the New Testament, the usual advice has seemed to be to worry about your own behavior and leave the other fellow alone.

Children take their values from examples; I believe the process never entirely stops. We are always looking around for someone to compare ourselves to; later we may, when our examples fail us, begin seeking principles that are simple enough to be recalled and powerful enough to be generally applicable. There is a danger in getting caught up in slogans, but a little reflection in time will usually save us.

Albert Schweitzer was one of my early heroes; he was also a writer who seemed to wrap great principles in simple, lucid phrases. Although he had been known to a small circle of theologians and musicians earlier in the century, he became a world figure after the War. I was an assistant resident when my wife gave me a copy of an anthology of his writings in 1947.[1] For him the key to his thought was "Reverence for Life." His heroes had prepared him for it, Jesus, Paul, Bach, Goethe, but he wrote that the words had come like a flash, "unforeseen and unsought."

In our post-war idealism we were all talking about the missionary doctor in Lambaréné. The Nobel Peace Prize came in 1952. After that, except for sporadic articles, we heard little more about him; physicians, who had given up a month or two to serve in the Third World, especially those working through Medico, occasionally got to spend a few weeks with him in Lambaréné, but admiration for Schweitzer and his work began to fade. He was dated, a remnant of the 19th century; his theology was outmoded, his interpretation of Bach unfashionable, his medicine inexcusably primitive; and he was imperious in his treatment of the blacks, if not downright racist. He died in Africa at the age of 90 in 1965. Ten years later, the 100th anniversary of his birth, there were a few articles in American medical journals; now much of what is written is in French or German, and seems largely to be commentary on his theological writings.

In Africa with Albert Schweitzer[2] is a recent book, a memoir by Dr. Edgar Berman, one of those volunteer surgeons who had worked at Lambaréné. He was president of Medico at the time, but had traveled to Africa not, as he told Dr. Schweitzer, "to just practice surgery, which I hope you'll be pleased with; I do enough of that at home." In response to Schweitzer's "So?," he continued, "Both my wife and I really came to try to get to know you." Reading Berman's account of his conversations with the 85 year-old Schweitzer, and then re-reading some of Schweitzer's deceptively simple prose recalled my enthusiasm of 40 years ago, and convinced me that it is we who are dated; Le Grand Docteur, as his patients called him, is eternally new. By contrast, scandals in government, illegal dealings on Wall Street, sexual irregularities among leaders of church and state, and professions turning themselves into businesses are old hat, monotonously familiar, and depressingly banal.

After Schweitzer had earned doctorates in theology, music, and philosophy, he turned to medicine, "That I might be able to work without having to talk....This new form of activity I could not represent to myself as talking about the religion of love, but only as an actual putting of it into practice." He searched his beloved Goethe for some justification of this "quixotic adventure," and wrote that

> "...this quixotic proceeding would perhaps not have been for him, the great man, so entirely quixotic, seeing that he finally allows his Wilhelm Meister, little prepared as he seemed to be for it, to become a surgeon in order that he may be able to serve."

Schweitzer rejected the cynical view that "ethical idealism is a form of sentimentality of which no use can be made in the world of reality." As teachers and doctors, examples for others whether we want to be or not, we might reject it as well. For a fresh view the imperious old missionary doctor with his zinc-lined piano is worth revisiting.

REFERENCES

1. Joy, Charles R., Ed., *Albert Schweitzer, An Anthology*, Harper & Brothers, New York, London: The Beacon Press, Boston, 1947.
2. Berman, Edgar, *In Africa with Schweitzer*, New Horizons Press, Far Hills, New Jersey, Macmillan Publishing Co., New York, 1986.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

HIV Positive Confirmed.
Then What?

AIDS is tough to treat. Ruthless to an increasing patient population, it challenges physicians and nurses as never before in their commitment to quality care.

The Spellman Center for HIV-Related Disease at St. Clare's Hospital and Health Center in New York City, accepts the challenge posed by AIDS and HIV infection. The first facility in the tri-state region to devote its resources solely to the care of AIDS patients, the Spellman Center designates its highest priority as compassionate patient care. A dedicated staff provides comprehensive medical, nursing, psychosocial, and dental treatment in an atmosphere that is warm and understanding.

The Spellman Center—a 60-bed Acute Care Unit, Emergency Service, Outpatient, Ambulatory Infusion and Dental Clinics—accepts referrals of patients with CDC-confirmed AIDS or ARC (AIDS-related complex), and those who are seropositive for HIV. Spellman also reaches out to offer testing, counseling and treatment to persons at risk for AIDS.

If you need consultation concerning your patients, or more information, please call Dr. Debra Spicehandler, the Medical Director, at (212) 307-1161.

The Spellman Center also maintains an information hotline for patients with questions about AIDS: 1-800-433-AIDS.

The Spellman Center
for HIV-Related Disease
A Designated AIDS Treatment Facility
St. Clare's Hospital and Health Center

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

Baby M and Public Policy

JOSEPH M. HEALEY, M.D.

Among the questions on the final examination of my graduate course this spring was one designed to explore issues raised by the Baby M case. In it two married couples (A and B) found themselves caught in a tangled medicolegal web. Both couples were participants in an *in vitro* fertilization program. Each couple had provided sufficient sperm from the respective husband and ova from the respective wife to result in six embryos available for implantation in the respective wives. Three embryos were implanted in each woman. Three embryos were reserved for each wife for subsequent implantation. The initial implantations were successful. However, the wife in couple A suffered a miscarriage after 12 weeks, while the wife in couple B delivered a healthy female infant at term. When couple A returned for a second attempt one year after the initial attempt, they discovered that the wrong embryo had been implanted and that the child of couple B had actually been the product of their sperm and egg. To make matters worse, the remaining embryos had been destroyed at the request of couple B who were content to have only one child. The husband of couple A had been recently rendered sterile by an industrial accident and would be unable to produce sperm for another attempt. The wife of couple B had undergone physical and psychological problems during her pregnancy, some of which were related to a flare-up of her lupus. Couple A filed suit for custody of the three-month-old child, claiming that she is their biological, genetic child and that they would make better parents. The students were expected to discuss the issues raised by this case and to recommend an appropriate disposition of the custody matter.

This question involves consideration of the extent to which the genetic, non-gestational parents have superior rights to those of the non-genetic, gestational mother and her husband with respect to child custody. As such it takes us one step beyond the situation presented in the Baby M case and underscores a weakness in those policies which maximize the contribution of the genetic parents and minimize the contribution of the gestational mother. Would we really permit couple A to take the three-month-old child away from couple B? Do we doubt that the husband and wife in couple B are the father and mother of the child? Taken to its conclusion, the lower court decision in the Baby M case would have us disregard the claim of a gestational mother who changed her mind about surrendering the child and would terminate her rights as a parent. This is one of the major weaknesses of the decision. Even if one assumes it is possible to structure a surrogate agreement so that it is not simply a contract for the purchase of a child, such an agreement would have to permit the gestational mother greater autonomy with respect to termination of pregnancy, medical care during pregnancy, and reconsideration following the birth of the child. Failure to respect her autonomy would result in an obvious violation of the woman's rights.

An even more fundamental weakness of the surrogate arrangement is the exaggerated emphasis on parental needs, wishes, and desires with a consequent ignoring of the child's well-being. Discussion of the potential medical, psychological and social harm to the child are understated, while the obvious benefits to the childless couple are emphasized. Sensitivity to the plight of childless couples and respect for their freedom to seek to bear their own children are important components of our evolving public policy about alternative reproductive technologies. However, our focus should not be so exclusively parent-focussed as to exclude concern for the well-being of the child. The potential commercialization of reproduction, so much a part of the surrogate process, has implications for the child which we have not yet begun to understand or evaluate. Much research remains to be done.

The trial court opinion in the Baby M case represents the first major legal decision dealing with surrogate parenting. Review of this opinion by the New Jersey Supreme Court will take place in the fall. During the past year, the legislatures of at least eight states (including Connecticut) considered the issues raised by surrogacy. A spirited public debate is likely to occur for some time.

JOSEPH M. HEALEY, J.D., Associate Professor, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

While you take care of patients, who takes care of you?

Connecticut physicians rely on us for comprehensive insurance and financial services.

- Professional liability coverage
- Business owners protection
- Personal life, auto, and homeowners insurance
- Financial planning
- Complete brokerage services

The Watson Group - professionals serving professionals.

the WATSON GROUP

Arthur A. Watson & Company, Inc.
Financial Action Plans, Inc.
Watson Financial Services Corporation
AAW Physician Plans, Inc.

225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

BOOK REVIEWS

Hospitals, Health, and People

By Albert W. Snoke, M.D., Hamden, CT, Yale University Press. 1987. 225 pp. $27.50

Most observers of the health scene in the United States believe that we are in a watershed era: changes recently made and changes soon to be made will radically alter the system over the years ahead. One of these observers is the author of this book.

It is important to anyone, or any group, planning for the future to understand and to appreciate as much as possible how and why we got where we are today. Who better to do this than one of the principals in the development of policies over the last 'watershed period'? Whether a mover and shaker, a planner, a consultant, or a gadfly, I doubt that anyone is better equipped to describe the 1950-1980 era than Albert Snoke. As a contemporary and close personal friend over most of these years, I was, perhaps, able to appreciate his autobiography (for that is the format in which he chose to present his thesis) better than most. All his accounts of the many plans and programs with which he was involved echo his twin convictions: the welfare of the patient must come first, and health and social services are inseparably intertwined. And, to the many excellent quotes he uses on these and other subjects, I would add but one, from our mutual friend, the late Dr. Jack Masur: "In health, statistics are just people with the tears wiped off."

Dr. Snoke recounts his early experiences at Stanford, then in Rochester, N.Y., and in his later work in Illinois and elsewhere, but for the most part his text centers on what happened either on the national or the local scene during the years he was active in Connecticut, where for 22 years he was director of Grace-New Haven Community Hospital. For this reason (if for no other) the book is a 'must' for anyone in Connecticut who is active and interested in health.

The book covers changes in administration, in medical practice, and in hospital governance. It is replete with anecdotes and examples—almost always ones with which the author was intimately familiar. One may at times disagree with his conclusions and his positions, but his refreshing frankness comes through despite the editorial softening of some of his expletives.

This book is a superb summary of the key issues of the day. It is a partisan summary, of course, but as one reads his account one cannot help appreciating the logic of his positions. Better than most, he has kept his sights on the primary target of all our efforts in the field: the patient.

Snoke's final chapters, "Ethics," and "Establishing a National Health Policy," are an excellent wrap-up to guide those who, over the next few years, will be doing what he did in the 50s, 60s, and 70s—helping to set health policies for the nation. His cry for a national health policy, however, is not new; it is one he, and a few other leaders, have been urging for years; perhaps this book will help us all along that road.

T. Stewart Hamilton, M.D.
Avon, CT

President Emeritus, Hartford Hospital, Hartford, CT.
Professor Emeritus, Department of Community Medicine, University of Connecticut School of Medicine, Farmington, CT.

More Than Just a Pretty Face: How Cosmetic Surgery Can Improve Your Looks and Your Life

By Thomas D. Rees, M.D., with Sylvia Simmons, Little, Brown & Co., 272 pp. $19.95

Dr. Thomas D. Rees is Professor of Plastic Surgery at New York University, Chairman of the Department of Plastic Surgery at Manhattan Eye, Ear, and Throat Hospital, and Senior Surgeon for the Institute for Reconstructive Surgery at New York University. His credentials in his specialty are excellent; his new book for the general public takes the reader on a voyage through each of the principal procedures of facial surgery performed for aesthetic reasons.

For the public-at-large, this fast-growing specialty is often marked by mystery and hype and it is to the author's credit that he debunks the many myths that have sprung up about cosmetic surgery ("lunch-hour facelifts," "injections that eliminate the need for surgery," etc.) and tells it as it is: the occasional pain, the possibility of complications in each procedure, the contra-indications for surgery, the risks, and other downside information.

There have been any number of books on this topic in the past. What makes *More Than Just a Pretty Face* an unusual treatment of the subject is the thoroughness, along with the simplicity and pleasant style that Dr. Rees employs to deliver his authoritative knowledge in the plastic surgery field, making this a valuable book for anyone considering cosmetic surgery.

As Rees points out in a breezy, up-front chapter, called "Cosmetic Surgery Comes of Age," these operations are no longer reserved for the idle rich. The subject has moved into the mainstream of American life, making giant leaps out of the closet in small towns as well as big cities and among men as well as women. For these surgery candidates, the book explores expectations, false and real, psychological considerations, possible complications, and other pertinent facts for each of the procedures Rees describes: the facelift, eyelid surgery, rhinoplasty, chin and jaw surgery, chemabrasion and dermabrasion, forehead and brow lift, silicone and collagen treatments, ear improvement, hair transplants, and others.

Rees leads the reader through the process of consultation, selection of a physician, surgery, recovery, convalescence, and the return to social and business life. The book provides information on such practical considerations as fees, insurance, hospitalization *vs* ambulatory care, choice of anesthesia, locations of incisions, diet, exercise, and use of cosmetics during recovery.

Faithful to common sense and science, the Rees book reflects the author's considerable knowledge. It is easy to read and can safely be recommended to patients considering cosmetic surgery.

Hans H. Neumann, M.D.

Wilton, CT

AIDS in the Mind of America: The Social, Political, and Psychological Impact of a New Epidemic

By Dennis Altman, Anchor Press Paperback, Doubleday & Co., New York, NY. 228 pp. $8.95

Dennis Altman's book *AIDS in the Mind of America* is a well written and at times moving description of the AIDS scene as appraised by an articulate member of the gay community. The book does not deal with symptoms, laboratory tests, or preventive techniques. Rather, it is a searching report by a skilled political scientist on the thoughts and feelings of homosexuals concerning AIDS, expressed often with dismay and sometimes anger for what this population group sees as an antagonistic, homophobic society.

Drug users, not being organized, and having neither a spokesman nor ready access to the media, are not covered as a group in this revealing analysis of the epidemic. The author admits that he lacks an insider's view of the addict's concerns regarding this disease. This lack does make for a somewhat lopsided picture of those most threatened by AIDS.

Physicians can gain much from reading Altman's book. It provides good background information on the disease itself and familiarizes one with the culturally prolific environment of the gay world. Furthermore, the book is eminently readable and reflects the discomfort that the population at large feels towards homosexuals, despite an intellectual desire to be unbiased.

Altman considers AIDS to be "a very political epidemic," tinged with a strong bias against, if not actual distaste for, homosexuals, and often a moralistic or judgmental reaction to the disease. His observations appear to be designed to help generate greater understanding of the gay community and AIDS in relation to this group. It is also apparent that, in painting a picture of current policies and attitudes to the epidemic, he hopes to generate a more human response to its sufferers.

The book makes some good arguments against the early handling of this disease by health care deliverers and pushes the reader towards a personal reevaluation of his or her own attitude towards the AIDS picture. It also touches on the problem of the younger, single, educated heterosexual population with its concerns, to the point of terror, where the disease is involved. However, Altman's attention to this segment of sexually active people is cursory and nowhere near as informed as is his analysis of the gay society.

This reader found *AIDS in the Mind of America* interesting and provocative throughout its 194 pages of text and believes it to be a valuable contribution to the current AIDS literature.

Hans H. Neumann M.D.

Wilton, CT

Second Seed

By Mary Lake Polan, M.D., NY: Charles Scribner's Sons, 1987. ISBN: 0-684-18735-3, $17.95, 280 pages.

Anyone who missed Mary Lake Polan's landing on the shores of our consciousness this Spring must either be deaf, dumb and blind, or from out-of-state. First there was the New Haven Register article, then the New York Times article, each with a photograph of Dr. Polan. Together with the flashy and suggestive jacket-cover artwork (the usual doctor-cum-stethoscope-around-neck surrounded by romantic attachments), such a debut leads one to great expectations. Dr. Polan meets some of these expectations, at least on one level. She disappoints, however, on another, much more important, level.

Second Seed is a thriller based on a Middle Eastern struggle for power. It uses in vitro fertilization (IVF), both state of the art technology (segregation of sperm by sex) and advances best described as temporarily science fiction (a strict maternal incubator), as a ploy to enmesh the protagonists in one scrape after another. Hossein Al-Benir is a potentate of a Middle Eastern country by his marriage to Aliza, the cousin of Turek, the determined and bitter rightful ruler. After a decision by the learned mullahs that Hossein could rule if Aliza gave birth to a male heir, Turek and Ardeshir, his cruel henchman, begin murdering everyone in Turek's way to the throne. In the most exciting scene of the book, they wound Aliza, leaving her brain in a coma but her ovaries healthy enough to spawn some eggs and the rest of the book.

Enter one bad doctor and one good doctor. The bad doctor, Joshua Wolff, connives with Hossein, an old Harvard buddy, to implant Hossein's and Aliza's embryo into the good doctor, Beth Danforth, a surgical resident just starting out in private practice. Beth is married to David, a criminal lawyer also beginning practice. They of course do not realize that the IVF Beth has had to have because of scarred Fallopian tubes and one ectopic pregnancy is anyone else's but theirs. Before long, however, the lurking presence of Turek and Ardeshir and a string of mysterious deaths makes them suspect that Dr. Wolff is not on the up and up. The novel then takes some twists and turns that it would be unfair to tell the reader.

Dr. Polan does a good job of pacing the adventure and keeping the reader interested. She does so, alas, in spite of a two dimensionality in her characterization. Beth is unlike any woman surgeon I have met. She is brave enough at one point to steal a pair of keys yet leave the gun next to them on the hook. When Beth is told her baby is not hers, she acts as though a patient just canceled an appointment. When Christine is told in the Longwharf production of Tom Stoppard's play *Dalliance* (a version of physician-writer Schnitzler's *Liebelei*) that Theodore has neglected to tell her, prior to his burial, that his friend Fritz, the man she loves, was killed in a duel, she calls Theodore a name I only wish I had known when I had to hold my own in the verbal fights of Brooklyn schoolyards. As a practicing reproductive endocrinologist at Yale New Haven Hospital, does Dr. Polan really think that Beth's reaction is as angry as a woman would get after being deceived like that? Why do we not have access to Dr. Wolff (I would ordinarily think his name was a pun on the Wolffian ducts but this novel does not justify such sophisticated interpretation) thinking the hours of guilty thoughts he would have thought, in detail, instead of a few passing uneasy minutes? Why do we not know more about Sarah, Beth's office secretary and helpmate, with whom Beth spends literally months? Why do we not know David's favorite flavor of ice cream, or composer?

Although Dr. Polan is not the first physician-writer to author a work of science fiction, and the jacket cover likens her to Michael Crichton and Robin Cook, unlike Doctors Crichton or Cook or Alan Nourse (who has written many books and short stories in this genre), she may be the first to allow such potential for ethical and social reflection to go virtually unnoticed. There is but the most fleeting of commentary by any of the characters, much less any authorial voice, on the incredible ethical issues at work here. When art is less intellectually stimulating than news emanating from New Jersey about Baby M, someone has failed.

In the New Haven Register article (April 19, 1987), Dr. Polan is quoted as saying, "When you write a novel, if you don't like how it turns out, you can just erase it and start over again. You're not bound by reality. You're not bound by people's real sadness." Unfortunately, this is no more true in art than it is in medicine.

Richard M. Ratzan, M.D.

Assistant Professor of Medicine, University of Connecticut, School of Medicine, Farmington, CT.

Letters to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgment), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1½ pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent *Journal* article should be received within six weeks of the article's publication.

COST CONTAINMENT: A CHALLENGE TO PHYSICIANS

To the Editor: In your March 1987 issue, Dr. Vincent Lynch of the New Haven Individual Practice Association wrote a most interesting editorial entitled "Cost Containment—A Challenge to Physicians." His comments have prompted me to offer a clarification. He makes the comment "Psychiatrists, psychologists, and mental health experts are going to have to take a hard look at what responsibilities the health care system has to recalcitrant alcoholics and drug addicts. Should subscribers assume some financial responsibility for their own health?"

I have had the opportunity to treat a large number of alcoholics and drug addicts throughout the years. It is a rare substance abuser who comes to treatment voluntarily. Nearly all of them are so full of denial and rationalization that they would not have sought treatment had it not been for intense external pressure coming from their employer, the courts, or their family. It would be easy to label these patients "recalcitrant" in the sense that they are stubbornly resistant to authority and/or guidance. This is an expected part of the syndrome of addiction.

However, I believe it is unfortunate to use the word "recalcitrant" in this context. It implies a degree of freedom to choose which is simply not part of the addiction process. These are not people who are refusing to comply with treatment for the sake of principle or convenience. Their resistance comes from their illness. They are unable to do other than deny their illness and resist treatment efforts.

Further, this stubborn resistance to treatment does not make treatment impossible. In fact, it is the predictable first phase of treatment through which all addicts must pass. After detoxification, it is the next clinical issue to be addressed.

These patients are not willfully interfering with treatment. They are demonstrating signs and symptoms of their disease. We are not unnecessarily expending scarce medical resources in treating these people. In fact, it has been demonstrated repeatedly that prompt and effective treatment for our patients with substance abuse problems save society in general and industry in particular huge sums in terms of time lost from work, accidents on the job and on the road, and low productivity.

Substance abuse treatment for these "recalcitrant" patients is one of the most cost effective clinical programs medicine has to offer.

Timothy M. Magee, M.D.
Medical Director

Natchaug Hospital, Inc.
Mansfield Center, CT

right on TARGET

Consider a few features of **The Western Journal of Medicine:**

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

Enclosed is $________ to cover ________ subscriptions.
Subscription renewal ☐ Regular subscription ☐
Foreign subscription ☐

TO: ____________________

Street ____________________

City/State/Zip ____________________

Specialty ____________________

Gift Card to read "From ____________________"

The Western Journal of Medicine

Please mail this coupon with enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year,
$90 2 years

IN MEMORIAM

ALLEN, JOHN C., Hahnemann Medical College, 1939. Dr. Allen practiced physical medicine and rehabilitation in the Hartford County area since 1940. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died February 20, 1987 at the age of 72.

BROWN, RICHARD B., Cornell University, 1947. Dr. Brown was a psychiatrist in the Hartford County area since 1948. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died March 18, 1987 at the age of 67.

LAVORGNA, MICHAEL H., St. Louis University School of Medicine, 1940. Dr. Lavorgna was an obstetrician and gynecologist in the New Haven County area since 1941. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association; died March 19, 1987 at the age of 73.

LERNER, MARGUERITE R., Case Western Reserve, 1950. Dr. Lerner was a dermatologist in the New Haven County area since 1956. She was a member of the New Haven County Medical Association, the Connecticut State Medical Society; died March 3, 1987 at the age of 62.

LEVY, NATHAN, Yale University School of Medicine, 1927. Dr. Levy was a general practitioner in the New Haven County area since 1927. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association; died April 12, 1987 at the age of 85.

MINOR, LLOYD W., Yale Medical School, 1932. Dr. Minor was a pediatrician in the Middlesex County area since 1933. He was a member of the Middlesex County Medical Association, the Connecticut State Medical Society and the American Medical Association; died February 3, 1987 at the age of 87.

MOSARAT, FARSHID, Tehran University Medical School, 1974. Dr. Mosarat was a surgeon in the New Haven County area since 1978. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society; died March 12, 1987 at the age of 37.

OTIS, FESSENDON N., Tufts Medical School, 1918. Dr. Otis was a radiologist in the New Haven County area since 1920. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society; died February 4, 1987 at the age of 95.

POLA, WILLIAM, Loyola Stritch, 1937. Dr. Pola was a general practitioner in the Hartford County area since 1938. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died March 31, 1987 at the age of 77.

RAWLS, COTTON, Medical College of Virginia, 1931. Dr. Rawls was a general surgeon in the Fairfield County area since 1936. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died January 17, 1987 at the age of 81.

SMERALDI, RICHARD A., University of Ottawa Medical School, 1959. Dr. Smeraldi was a family practitioner in the Fairfield County area since 1961. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died February 7, 1987 at the age of 52.

WHITE, EDWARD P., University of Vermont Academic College and College of Medicine, 1937. Dr. White was a surgeon in the Hartford County area since 1938. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died January 23, 1987 at the age of 75.

WHITE, HOWARD, T., Western Reserve, 1934. Dr. White was an internist in the New Haven County area since 1944. He was a member of the New Haven County Medical Association and the Connecticut State Medical Society; died March 12, 1987 at the age of 76.

SPECIAL NOTICES

NATIONAL INSTITUTES OF HEALTH CENTENNIAL

September 9, 1987

The University of Connecticut Health Center and the Yale University School of Medicine will hold a seminar Wednesday, September 9, 1987, for health professionals, including clinicians and scientists, to celebrate the centennial of the National Institutes of Health.

Seminar topic:	"Frontiers of Biomedical Research: The Next 100 Years."
Date:	September 9, 1987, 2 p.m.
Place:	Mary S. Harkness Auditorium, Sterling Hall of Medicine 333 Cedar St., New Haven, Connecticut
Speakers:	U.S. Senator Lowell Weicker, Rep. of Connecticut. Dr. James Wyngarden, director of NIH, on "New Science-New Frontiers." Frank H. Ruddle, Ph.D., professor of biology and human genetics, on "Mapping the Human Genome." Sydney H. Croog, Ph.D., professor of behavioral sciences and community health at the University of Connecticut School of Dental Medicine and professor in psychiatry at the University of Connecticut School of Medicine, on "Quality of Life: Emergent Issues in Biomedical Research and Clinical Practice."

No fee. Open to interested people.

For more information, please call the Office of Public Information, Yale School of Medicine, 785-5824.

SIXTH ANNUAL ELLA T. GRASSO MEMORIAL CONFERENCE

November 18, 1987

This symposium addresses current clinical problems and research developments in gynecologic oncology. It is directed toward obstetricians/gynecologists, medical oncologists, radiation therapists, pathologists, nurses, and residents. The symposium is sponsored by the Divisions of Gynecologic Oncology at the Yale University School of Medicine, the Yale Comprehensive Cancer Center, and the University of Connecticut School of Medicine.

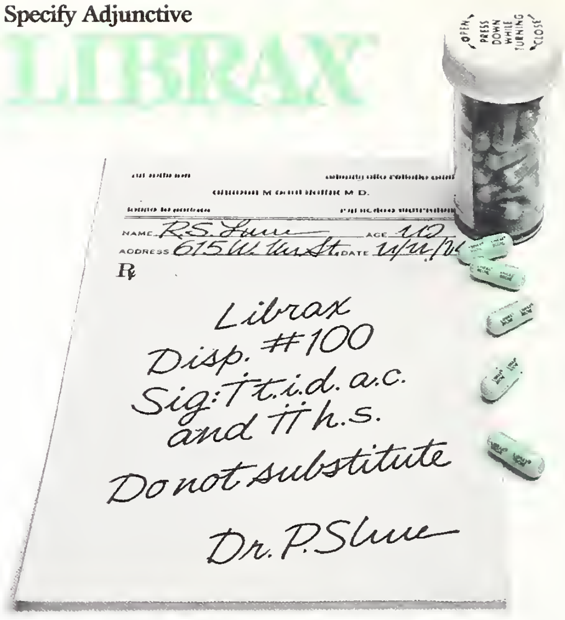
Location:	The Park Plaza 155 Temple Street New Haven, CT (203) 772-1700
Guest Faculty:	J. Taylor Wharton, M.D. M.D. Anderson Hospital and Tumor Institute Peter Wiernik, M.D. Montefiore Hospital Medical Center Richard I. Reid, M.D. Sinai Hospital of Detroit Howard W. Jones, III, M.D. Vanderbilt University Medical Center Maria Merino, M.D. NIH - NCI Jeffrey Schlom, M.D. NIH - NCI

For registration and further information (after AUGUST 1, 1987):

Yale University School of Medicine
Office of Graduate and Continuing Education
333 Cedar Street, P.O. Box 3333
New Haven, CT 06510
(203) 785-4578

Specify Adjunctive

LIBRAX



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium bromide

Please consult complete prescribing information, a summary of which follows:

* **Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows:
"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.
Final classification of the less-than-effective indications requires further investigation.

Contraindications: Glaucoma; prostatic hypertrophy, benign bladder neck obstruction; hypersensitivity to chlordiazepoxide HCl and/or clidinium Br.
Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

Usage in Pregnancy: **Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.**

As with all anticholinergics, inhibition of lactation may occur.
Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship not established.
Adverse Reactions: No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated; avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered: isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction; changes in EEG patterns may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

P.I. 0186

ROCHE®
Roche Products Inc.
Manati, Puerto Rico 00701

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

AMBULATORY CARE

Full or part time position available for physician in the Colchester Immediate Care Medical Center opening mid-April. Salary and benefits negotiable. Please send C.V. to: Dr. Robert Moskowitz, Stonemill Road, Mansfield, CT 06250 or phone (203) 429-6109.

Full time position available for an ambulatory care physician to work in an established walk-in center in the greater Bridgeport area. Please send curriculum vitae to Immediate Health Care, 15 Armstrong Rd., Shelton, CT 06484. Attn: Darlene.

New London – Immediate full or part-time position available to work in an established Ambulatory Care Center. Excellent salary and benefits. Send C.V. to Charles M. Parrott, M.D., Nameaug Walk-In Medical Center, 21 Montauk Ave., New London, CT 06320.

ANESTHESIOLOGY

Full-time position for a BE/BC anesthesiologist to work at a free-standing ambulatory surgical center presently performing about 2,900 anesthetics per year. Anesthesia provided by fee-for-service; physicians only professional corporation. Salary and benefits negotiable. Send CV to John C. Daniels, M.D., Danbury Surgical Center, 73 Sandpit Rd., Suite 101, Danbury, CT 06810. Phone (203) 743-2400.

EMERGENCY MEDICINE

Full time position available in a modern progressive 102-bed general hospital in Northeastern Connecticut. Board eligible/certified or prepared in Emergency Medicine with General Surgery, Family Practice or Internal Medicine background preferred. Attractive compensation and benefits. Send CV and benefits to Satya Agarwal, M.D., FACEP, Director, Emergency and Outpatient Services, Rockville General Hospital, 31 Union St., Rockville, CT 06066. Phone (203) 872-0501.

FAMILY PRACTICE

Family practice physician or internist urgently needed for community health center in Hartford. Regular hours, no weekends, malpractice paid. Will consider full or part time. Contact Kurt Myers, M.D., at 236-0857 for more information. E.O.E.

For Sale: Well established Family Practice. Excellent location and opportunity in central Connecticut. Send replies to CSMS, c/o FP/JL.

INSTITUTIONAL MEDICINE

Part-time physician needed for *sexually transmitted clinic* at the New Haven Health Department, One State Street. Send resume to Health Director, New Haven Health Department, One State St., New Haven, CT 06511.

INTERNAL MEDICINE

Internal Medicine group looking for associate to join our practice located in New Haven area. Please send C.V. to Dr. William Schreiber, 2416 Whitney Ave., Hamden, CT 06518.

Board Certified Internal Medicine or subspecialty for busy coastal Internal Medicine group. Forward C.V. to William A. Colom, M.D., 447 Montauk Ave., New London, CT 06320.

The Northeast Permanente Medical Group in the greater Hartford area of Connecticut is seeking B/C or B/E Primary Care Internists for 1987. The Medical Group is the exclusive provider of health care services for the Kaiser Foundation Health Plan of CT. This opportunity offers membership in a 20 physician, multispecialty professional corporation; competitive salary and benefit programs; medical offices throughout the greater Hartford area and much more. University-hospital training or its equivalent is desirable. Address inquiries and resumes to: Alan Greenglass, M.D., Chief, Department of Internal Medicine, c/o Physician Placement Dept., Northeast Permanente Medical Group, P.C., Suite 401, 60 Washington St., Hartford, CT 06106.

Opportunity to take over active practice in suburban Hartford – served by all Hartford hospitals – planning retirement in one to three years. Please write CSMS, c/o IM/HZ.

Cardiology. BC/BE Cardiologist needed for community hospital cardiology private practice. Interest or experience in behavioral cardiology desirable. Please forward CV to Stephen T. Sinatra, M.D., F.A.C.C., P.C., 483 West Middle Turnpike, Manchester, CT 06040.

For Sale. Internal Medicine practice. Established 21 years. Southern Connecticut. Excellent location near Yale-New Haven and New York City. Call (203) 795-9419, evenings. Available July 1987.

MISCELLANEOUS

Seeking BC physicians in Hartford, CT area, who are particularly proficient in patient history and physical examinations. Medical Assessment Programs provides comprehensive Independent Medical Examinations for Workers' Compensation, Liability and Bodily Injury patients. Openings for part-time and full-time physicians. Monday through Friday, 9 to 5. No weekends or evenings. Excellent benefits and salary. For additional information, call Dr. Smith (617) 449-8201.

ORTHOPEDICS

Shared office space available for an Orthopedist. Prime, easily reached location with free parking, in New Haven. X-Ray, Cybex II and other diagnostic equipment included for use. Please contact, Giovanni Raccugli, M.D., 437 Orange St., New Haven, CT 06511. (203) 624-5706.

OTOLARYNGOLOGY

Associate needed for general E.N.T. practice in Northwestern Connecticut. Prefer board certified and Connecticut licensed. Send resume to CSMS OTO/PA.

PEDIATRICS

An opening for a part time associate, for up to 20 hours a week, is available now in a two person private pediatric practice. Office is located five miles from the Yale-New Haven Medical Center, our chief hospital affiliation. Earnings will be 50% of gross income. If interested call (203) 248-4846 any evening after 7 p.m.

PRIMARY CARE

Full time physicians for walk-in medical services. West Haven and Milford. Write, CSMS, c/o PC/BY.

Internist. The Northeast Permanente Medical Group in the greater Hartford area of Connecticut is seeking BC/BE primary care internists for 1987. The Medical Group is the exclusive provider of health care services for the Kaiser Foundation Health Plan of CT. This attractive opportunity offers membership in a multispecialty professional corporation, with enrollment of approximately 30,000 members with competitive salary and benefit programs. University-hospital training or its equivalent is desirable. Address inquiries and resumes to: Alan Greenglass, M.D., Chief, Department of Internal Medicine, c/o Physician Placement Dept., Northeast Permanente Medical Group, P.C., 60 Washington St., Suite 401, Hartford, CT 06106.

RADIOLOGY

General radiologist with training in all phases of diagnosic and invasive radiology is being recruited by a six-man group of radiologists in Northeastern Connecticut. Practice includes three offices and a small progressive hospital. The hospital currently offers a full range of services including nuclear medicine, ultrasound and CT unit, new one-day surgical center recently completed, also regional dialysis center and busy outpatient department. Part-time may be considered for this position. Send C.V. to Jonathan Berger, M.D., 142 Echo Drive, Vernon, CT 06066.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

GENERAL PRACTICE

April '87. Age 52. Licensed in Connecticut. AB elig. MD, University of Lausanne, Switzerland; Int., Bronx-Lebanon Hospital Center, Bronx, NY. Prefers solo type practice. Write, CSMS, c/o CT/GP.

GENERAL SURGERY

April '87. Age 40. Nat'l bds. AB elig. MD, New York University; Int. and Res., St. Vincent's Hospital, NYC; Fellowship, Mt. Sinai Hospital, NYC. Prefers group, associate or institutional type practice in a medium-sized community. Write, Kathleen M. Kelly, M.D., 300 First Ave., New York, NY 10009.

INTERNAL MEDICINE

Aug. '87. Age 28. Nat'l bds. AB elig. MD, Cornell University Medical College; Int. and Res., George Washington University Hospital. Prefers group, associate and institutional type practice. Write to: Joanne Foodim, M.D., 1819 Kalorama Rd., N.W., Washington, DC 20009.

July '87. Licensed in Connecticut. Age 66. Nat'l bds. AB cert. MD, Georgetown University School of Medicine; Int. and Res., Boston City Hospital; Fellowship, Peter Bent Brigham (cardiology). Prefers institutional or insurance consulting type practice. Write CSMS, c/o ML/IM.

OBSTETRICS & GYNECOLOGY

Immediately available. Age 58. Licensed in Connecticut. AB elig. MD, University of La Plata, Argentina; Int. and Res., St. John's Episcopal, Brooklyn, NY. Prefers Fairfield County; part time only. Fluent in Spanish, Italian and English. Write, Dora Perino, M.D., 223 Misty Wood Lane, Fairfield, CT 06430.

OTOLARYNGOLOGY

April '87. Licensed in Connecticut. Presently in practice. AB elig. MD, Queens College, St. Andrews University, Scotland. Int., Maryfield Hospital, Dundee, Scotland; Res. Kingston General/Ottawa General, Canada; Fellowship, St. Luke's – Columbia Presbyterian. Type of practice depends on opportunity. Write, CSMS, c/o PD/OTO.

Oct. '87. Age 30. Nat'l bds. AB elig. MD, State University of NY-Downstate; Int. and Res., Albert Einstein/Montefiore Medical Center. Prefers solo, group, associate or institutional type practice preferably in the Fairfield/Stamford area. Write to: CSMS, c/o RL/OTO.

PEDIATRICS

July '87. Licensed in Connecticut. Age 33. FLEX. AB elig. MD, Far Eastern University, Manila, Philippines; Int., Iloilo Provincial Hospital, Philippines; Res., The Brooklyn Hospital, Brooklyn, NY. Any type practice acceptable in a medium-sized community. Write, CSMS, c/o AHC/PED.

June '87. Age 40. Licensed in Connecticut. Presently in practice. Nat'l bds. AB cert. MD, Lady Harding Medical School, Delhi, India; Int., Danbury Hospital, Danbury, CT; Res., Hartford Hospital and University of Connecticut. Prefers group or institutional type practice in a large-sized community. Write CSMS c/o NP/PED.

PAID CLASSIFIED ADVERTISING

BETHANY, CT NEEDS DOCTORS! Open a new Emergency Care Center Medical Office as soon as possible. Only 12 miles to Yale-New Haven; St. Raphael's; 10 miles to Waterbury Hospital. A new building is going up now in an established area. Lease with option to purchase. Contact: Gary Merritt, KATZ REALTY, INC., 1-800-843-3097.

CLASSIFIED ADVERTISING RATES

$50.00 for 25 words or less; 50 cents for each additional word.

$3.00 per insertion for confidential answers sent in care of CONNECTICUT MEDICINE. Payable in advance.

The Present State of Endometrial Cancer

Controversies and Problems

ERNEST I. KOHORN, M.D.

ABSTRACT—This paper presents the newer histologic entities in endometrial neoplasia and discusses current management and problems of endometrial cancer.

Twenty years ago there was no doubt how to treat endometrial cancer; now there is confusion and controversy. This paper discusses the factors responsible for this dramatic change.

Corpus cancer is a disease with a changing profile. It has been known for many years that poorly differentiated adenocarcinoma of the endometrium (FIGO grade 3) is associated with a poor prognosis. In previous decades such histology was present in only a minority of patients. Most cancers were well differentiated and management by hysterectomy, frequently with adjuvant intracavitary radiation therapy, was associated with a high cure rate. All that has changed.

Epidemiology

There is increasing evidence that there are two cohorts of endometrial cancer.[1] The first group is associated with unopposed estrogen action, endometrial hyperplasia, cellular atypia, and a well differentiated carcinoma. The second group is associated with more anaplastic tumors arising from an atrophic endometrium. The first group has a good prognosis, the second group has a poor prognosis. The first group has decreased in size and there are now more patients in the second group.

The realization that the continuous unopposed estrogen action which leads to endometrial hyperplasia and cancer can be reversed by progestational agents came at the time when effective oral progestational medication became available.

Patients with chronic anovulation, those with Stein-Leventhal Syndrome, patients requiring chronic estrogen medication, such as Turner's syndrome, may now easily be given progestational agents to prevent chronic prolonged endometrial hyperplasia. Newer methods of ovulation induction such as clomiphene citrate and menotropins have helped to reduce the frequency of chronic endometrial hyperplasia in younger women. Menopausal patients receiving estrogen replacement therapy are now given the minimal effective dose of estrogen together with continuous or intermittent gestagen. The endometrial carcinoma that followed many years of high dose conjugated estrogen is now a rarity.

In the meantime the life expectancy of the population has increased, particularly among women who may reach 85 years by the turn of the century. We are seeing increasing numbers of postmenopausal women who have had normal childbearing and a normal menopause, who develop postmenopausal bleeding in their sixties and seventies and are found to have a grade 2 or 3 tumor arising in association with an atrophic endometrium. Many of these women are not obese, hypertensive or diabetic, conditions normally associated with endometrial cancer. Clearly patients with these associations will continue to be seen, but again they are likely to have more well differentiated tumors.

It is this second cohort of more poorly differentiated tumors that presently offer a challenge for effective therapy.

Staging of Endometrial Carcinoma

For many years a clinical system of staging devised by the International Federation of Obstetrics and Gynecology (FIGO) has been in use for staging endometrial carcinoma. Table 1 shows the most recent update. This clinical classification was initially devised to allow for comparison of results between centers that use primarily radiation and those that use primarily surgery. By now it is realized that surgery offers the best chance of cure and allows for much more precise staging in stage II and III disease as well as with tumors of papillary serous histology. Surgical staging is therefore always indicated except for the few patients with major irreversible medical contraindications.

If the surgical staging then differs from the initial clinical FIGO staging, this is customarily indicated by adding the prefix "surgical" following the stage number; for example, FIGO stage Ib, surgical stage III, when ovarian involvement is unexpectedly found at exploration.

Histologic Factors

Apart from the higher frequency of more anaplastic tumors (Figure 1), rather than well-differentiated adenocarcinomas (Figure 2), there comes the recent recognition of two entirely new entities of endometrial neoplasms, the adenosquamous carcinoma[2] and the papillary serous carcinoma (Figure 3).[3]

Squamous differentiation in endometrial carcinoma was for many years regarded as a feature of good prognosis

---

ERNEST I. KOHORN, M.D., Professor, Department of Gynecology, Section of Gynecologic Oncology; Director, Gynecologic Services, Yale University School of Medicine.

Table I

DEFINITIONS OF THE CLINICAL STAGES IN CARCINOMA OF THE CORPUS UTERI

Stage 0

Atypical endometrial hyperplasia, carcinoma in situ. Histological findings are suspicious of malignancy.

Cases of Stage 0 should not be included in any therapeutic statistics.

Stage I

The carcinoma is confined to the corpus.

Stage Ia: The length of the uterine cavity is 8 cm or less.

Stage Ib: The length of the uterine cavity is more than 8 cm.

Stage II

The carcinoma has involved the corpus and the cervix, but has not extended outside the uterus.

Stage III

The carcinoma has extended outside the uterus, but not outside the true pelvis.

Stage IV

The carcinomoa has extended outside the true pelvis or has obviously involved the mucosa of the bladder or rectum. A bullous edema as such does not permit a case to be allotted to Stage IV.

Stage IVa: Spread of the growth to adjacent organs: urinary bladder, rectum, sigmoid, or small bowel.

Stage IVb: Spread to distant organs.

Histopathology—Degree of Differentiation

Cases of carcinoma of the corpus should be grouped with regard to the degree of differentation of the adenocarcinoma as follows:

GI	Highly differentiated adenomatous carcinoma.
G2	Moderately differentiated adenomatous carcinoma with partly solid areas.
G3	Predominantly solid or entirely undifferentiated carcinoma.
GX	Grade not assessed.

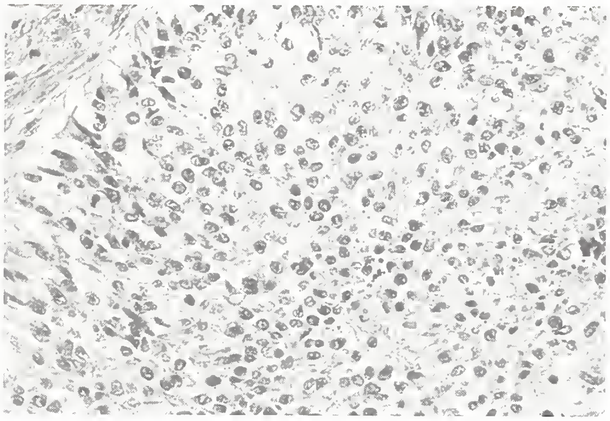


Figure 1

Carcinoma Endometrium Grade 3: Poorly Differentiated

and the term adenoacanthoma designated those neoplasms where the squamous change was extensive. In adenosquamous tumors the squamous elements gave the appearance of histologic malignancy and this feature was considered to confer a worse prognosis. Although some uncertainty remains, it would appear that the prognosis of adenosquamous carcinoma is related to the adenomatous element. Most frequently malignant squamous elements go along with a grade 3 histology. It is unusual to have malignant squamous elements with grade 1 adenocarcinoma and there is little evidence that the prognosis is worse in that circumstance.

The recognition of uterine papillary serous carcinoma as a sinister neoplasm is the other important recent development. In 1963, Karpas and Bridges[4] reported a patient whose endometrial cancer contained psammoma bodies. Further reports of such histology were summarized by LiVolsi[5] and in 1982 Hendrickson et al[6] designated these tumors as uterine papillary serous carcinoma. These tumors resemble ovarian cancer both in histologic appearance and in pathologic behavior.[3]

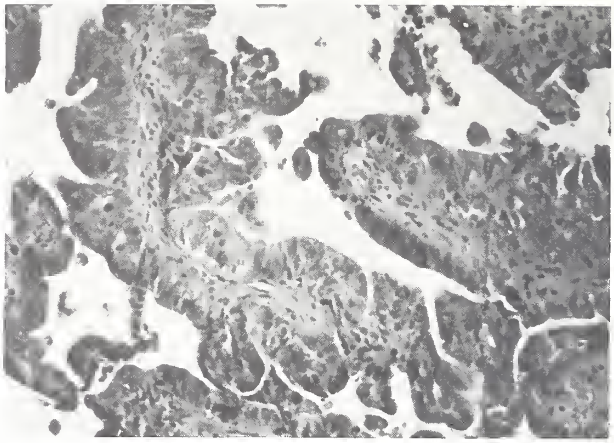


Figure 2

Carcinoma Endometrium Grade I: Well Differentiated

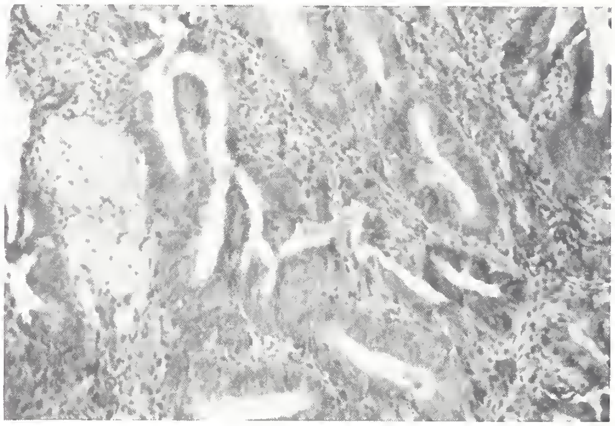


Figure 3

Uterine papillary serous carcinoma: relatively benign architecture with malignant appearing cells and nuclei and stratification. This uterine tumor behaves like an ovarian cancer.

In 20 patients with FIGO stage I and II cases, surgical staging was more advanced than the clinical stage in 44%.[3] The overall survival rate for surgical stage I was 33% and only 11% for stages III and IV.

Patients with early surgical stage I and II had a 45% five year survival. These results contrast with the overall five year survival of 76.5% for Yale New Haven Hospital reported to FIGO for clinical stage I endometrial cancer. At least 50% myometrial invasion was found in 43% of the 30 hysterectomy specimens and lymphatic invasion in the myometrium was demonstrated in 78% of the specimens. Of 12 patients with deep myometrial invasion who had follow-up, only three were free of tumor. The reported five year tumor free survival with deep myometrial invasion was 60%. Pelvic radiation has not prevented recurrence as the cancer is so frequently outside the pelvic fields. With extrauterine disease found at initial surgery various platinum-based combination chemotherapy protocols have not prevented tumor progression.[3]

If uterine papillary carcinoma is diagnosed by curettage, then an exploratory laparotomy with pelvic washing, omentectomy, and upper abdominal exploration is mandatory, similar to the procedure used in ovarian cancer. With extrauterine disease, therapies other than radiation and the chemotherapy agents presently used will need to be explored.

The remaining problem concerns the histologic differentiation between severe atypical hyperplasia and well-differentiated carcinoma. Patients with either diagnosis are treated by hysterectomy, so the distinction becomes significant only when adjuvant radiation is offered to patients with carcinoma.

Methods of Diagnosis

There is little problem in diagnosis of definite cancer. Endometrial biopsy is still twice as efficient as cytology in the investigation of the symptomatic patient. An endocervical biopsy should be obtained at the time of the endometrial biopsy. If this is positive and shows endometrial cancer involving endocervical tissue, an immediate diagnosis of stage II disease is made. Curettage with anesthesia is only necessary if an office endometrial biopsy is technically not possible or provides inadequate tissue for diagnosis.

Investigations

There is a 5% association of breast and colon cancer so that it may be wise to exclude such associated diseases.

Myometrial Invasion: Nodal Disease: Staging in Relation to Management Planning

Lewis and Stallworthy[7] brought to our attention the relation of increasing degrees of myometrial invasion and tumor grade to the increased likelihood of lymph node metastases. The study by the Gynecologic Oncology group, a multicenter group in the United States sponsored by the National Cancer Institute, has amply confirmed the Oxford study by Lewis & Stallworthy.

It is established that with no myometrial invasion or superficial invasion (less than 10%) the chance for pelvic lymph node metastases with grade 1 or 2 histology is 0.5% or less. As myometrial invasion increases and as histology shows more anaplastic grade, the frequency of pelvic nodal involvement increases to as high as 35% and that of para-aortic node involvement to 15%. It has become the practice in some centers to perform pelvic and para-aortic node sampling as a routine, while others advocate node dissection only if palpable nodes are found at surgery. Node sampling in the pelvis adds little to the morbidity of the surgery. Para-aortic node sampling clearly requires more time, a more extensive dissection, and may thus add to morbidity both in the obese patient with hypertension and diabetes and in the older, more frail second cohort of patients with anaplastic tumors. The dilemma whether to perform routine node sampling is bedevilled by the paradox that if deep myometrial invasion is found, most gynecologic oncologists and radiation oncologists would advocate postoperative pelvic irradiation even if the pelvic node sample failed to show metastasis. To find involved nodes in the absence of deep myometrial involvement is rare.

It is well established that nodal disease is not eradicated by surgery but may be eradicated by irradiation. Even more difficult is the question of what to do if positive para-aortic nodes are found. Overall, para-aortic irradiation has not been associated with improved survival because para-aortic node involvement is usually a manifestation of disseminated disease. Yet we have seen patients with proven positive para-aortic nodes, even with histologic grade 3 tumor, who demonstrate long term survival following para-aortic (as well as pelvic) irradiation.

The question whether or not radiate nodes then becomes dependent on the associated morbidity. The radiation related morbidity in this older group of patients with endometrial cancer is likely to be greater than the morbidity associated with usually younger cervical cancer patients. Obesity, hypertensive vascular disease and arteriosclerosis, particularly in intestinal vessels, diabetes, and age all contribute to the risk of intestinal vascular insufficiency, and irradiation colitis and cystitis. Nevertheless, with careful delivery of moderate doses (no more than 4,000 rads to the para-aortic area and no more than 4,500 rads total to the pelvis) some patients may well be salvaged. There is little alternative therapy for such high-risk patients at present because hormonal therapy is least effective in these poorly differentiated histologic grades and because cytotoxic chemotherapy is not associated with long term survival.

Is there a place for intracavitary radiation? This also is an area of controversy. Many oncologists still advocate preoperative intrauterine radium or cesium and few find significant morbidity with this. It is disturbing that the report by Aalders et al[8] found two vesicovaginal fistulas following intracavitary therapy given preoperatively. This is hopefully unusual, although it cannot be stressed sufficiently that any radiation-associated surgery must be done meticulously and with even greater than normal attention to careful tissue handling. With grade 1 and 2 histology intracavitary radiation does not improve survival, but we continue to use this technique with grade 3 tumors.

Certainly intrauterine radium or cesium does not prevent vaginal vault recurrence. Vaginal vault radiation is necessary for this and it appears to be immaterial whether this is delivered preoperatively or postoperatively. There are data to show that a minimum dose is necessary and that 40 mgm of radium equivalent must remain in place for at least 36 hours.[9]

Whether or not to treat patients with grade 1 lesions with vaginal vault radium becomes a matter of philosophy as 90% of patients will be treated unnecessarily for an 8% gain in reducing vaginal vault recurrence. In the absence of morbidity (one fistual in some 700 patients) we continue this practice.

Stage II Carcinoma Endometrium

The diagnosis of stage II carcinoma of the endometrium may only be made by finding carcinomatous tissue in contiguity with cervical tissue; usually this implies the presence of cervix glands. However, if the site of biopsy is certain, contiguity with cervix stroma is acceptable. The most serious involvement of the cervix is the category of "tumor only" where an experienced gynecologist obtains tissue that is definitely from the cervical canal, yet all stroma is replaced by cancer.[10] It is important for the pathologist to accept such a biopsy as evidence for stage II disease.

Cervix involvement by endometrial carcinoma is not a risk factor in itself but is a danger signal for deep myometrial invasion and nodal involvement. In view of this, we prefer to treat such patient by preoperative intracavitary radiation and pelvic radiation and then to perform an extrafascial hysterectomy with a selective paraaortic node sampling.

We have had little morbidity with this plan in the past 15 years. Radical hysterectomy does not appear necessary for endometrial cancer as the cardinal ligaments are rarely involved even if pelvic nodes are positive, suggesting that early spread to nodes is by embolization rather than by permeation.

Procedural Factors Important in Management

During hysterectomy an assessment of the whole abdomen is essential. All serosal surfaces must be inspected and biopsied if there is any suspicion of involvement. The omentum must be biopsied with all papillary serous tumors or if there is any suspicion of involvement. Pelvic washings have prognostic value.

It is our practice to "ink" the serosal surface of the uterus so as to obtain a more precise measure of myometrial penetration, and an estimate of myometrial penetration should be given by the pathologist intraoperatively so that an assessment can be made of how aggressively node sampling should be pursued, particularly in the lower grades.

Hormonal and Cytotoxic Chemotherapy

The discovery that progestational agents could "cure" certain cases with metastatic endometrial carcinoma led to hopes that a nonsurgical means of controlling this disease had been found. The initial drugs used were hydroxyprogesterone, and then medroxyprogesterone and megestrol, the latter two as oral preparations. With experience it was realized that the responders were patients with well-differentiated tumors that were slow growing and that the response rate with grade 3 tumors was only 15%.[11] Even among grade 1 tumors only 50% responded. Thus surgery with a 90% cure rate in early disease has remained the mainstay of therapy and progestational therapy is reserved for metastatic disease.

The advent of hormone receptor measurement led to great hopes that we would be able to predict tumors sensitive to progestational agents. It has proven that progestogen receptor measurement is of little more value than the histologic grade.

While response to progestational agents may be dramatic with well-differentiated tumors, most recurrences are now associated with anaplastic tumors not amenable to hormone manipulation. Progestational agents may be offered to all patients with metastatic disease as there is no toxicity and there may be response. However, the response rate in grade 3 disease is so low with progestational agents that cytotoxic chemotherapy should be considered at the beginning, particularly in the younger patient in good general health.

At present, however, cytotoxic chemotherapy has been useful only as palliation. As a single agent, adriamycin is the most effective drug, but its use may be precluded in patients with myocardial damage. We have had response with adriamycin-platinum combinations with demonstrable objective response, but no long term survivors. The length of response has on occasion been as long as six to 18 months so that the use of these drugs appears to be worthwhile.

The Future

We are currently investigating the role of oncogene expression in endometrial cancer. It appears that fms proto oncogene is expressed significantly in aggressive endometrial cancers. There is a possibility that antibody-to-oncogene product may be the next generation of chemotherapeutic agents.

In terms of everyday practice, we need to decide how aggressively we may investigate our patients at the time of staging surgery, and we urgently need a prospective therapeutic study that will answer all the questions that have just been raised.

REFERENCES

1. Bokhman JV: Two pathogenic types of endometrial carcinoma. Gyn Oncol 1983, 15:10-17.
2. Ng ABP, Reagan JW, Storaasli JP: Mixed adenosquamous carcinoma of the endometrium. Am J Clin Path 1983, 59:765-781.
3. Chambers JT, Merino M, Kohorn EI, Peschel RE, Schwartz PE: Uterine papillary serous carcinoma. Obstet Gynecol 1987, 69:109-113.
4. Karpas CM, Bridge MF: Endometrial adenocarcinoma with psammomatous bodies, Am J Obstet Gynecol 1963, 87:935-941.
5. LiVolsi VA, Case Reports: adenocarcinoma of the endometrium with psammoma bodies. Obstet Gynecol 1977, 50:725-728.
6. Hendrickson M, Ross J, Eifel P, Martinez A, Kempson R: Uterine papillary serous carcinoma: a highly malignant form of endometrial adenocarcinoma. Am J Surg Path 1982, 6:93-108.
7. Lewis BV, Stallworthy JA, Cowdell R: Adenocarcinoma of the body of the uterus. J Obstet Gynecol Brit Cwlth 1970, 77:343-348.
8. Aalders JG, Syde RVD, Poppema S, Szabo BG, Janessens J: Prognostic factors and changing trends in the treatment of stage I endometrial cancer: a clinical and histopathologic study of 182 patients. Int J Rad Oncol, Biol, Physics 1984, 10:2083-2088.
9. Wade ME, Kohorn EI, Morris JMCL: Adenocarcinoma of the endometrium. Evaluation of preoperative irradiation and factors influencing prognosis. Am J Obstet Gynecol 1967, 99:869-876.
10. Kadar NRD, Kohorn EI, LiVolsi VA, Kapp DS: Histologic variants of cervical involvement by endometrial carcinoma. Obstet Gynecol 1982, 59:85-92.
11. Kohorn EI: Hormonal and nonhormal chemotherapy in endometrial carcinoma, in gynecology and obstetrics, ed Sciarra JJ, Harper Row, Hagerstown. Gynecol Oncol 1980, Ch 20, pp 1-19.

Gastric Pull-Up Replacement of the Pharynx and Esophagus in Cancer of the Pharynx and Larynx

RONDI K. WALKER, M.D., C. ELTON CAHOW, M.D.
AND CLARENCE T. SASAKI, M.D.

ABSTRACT–Effective surgical therapy for cancer of the pharynx, larynx, and cervical esophagus has been hampered by the difficulty in restoring intestinal continuity between oropharynx and thoracic esophagus following total laryngopharyngectomy. Cure rates for patients that require this extensive, radical surgery are extremely poor. Therefore, both curative and palliative procedures designed to reconstruct these circumferential defects should provide a low mortality and morbidity, short hospitalization, and a short interval to successful oral alimentation. Throughout the last 20-30 years, a variety of surgical procedures has been undertaken to repair these defects.

Introduction

Cure rates for patients that require total laryngopharyngectomy are extremely poor. Therefore, both curative and palliative procedures designed to repair these circumferential defects should provide a low mortality and morbidity, short hospitalization, and a short interval to successful oral alimentation.

The application of the stomach to pharyngoesophageal reconstruction was initially performed by Ong and Lee[1] in 1960 through a transthoracic approach. A few years later, LeQuesne and Ranger[2] combined gastric transposition with closed-chest blunt esophagectomy as proposed by Turner in 1936.[3] The resultant gastric pull-up procedure was later modified and improved by Stell,[4] Leonard and Maran,[5] Silver,[6] Akiyama,[7] Harrison,[8] Orringer,[9] and Spiro.[10] At Yale for the past three years, gastric transposition has been the preferred method of reconstruction for patients that require total laryngopharyngoesophagectomy.

Materials and Methods

From 1983 to 1986, a total of 16 patients underwent total laryngopharyngoesophagectomy with gastric pull-up reconstruction for carcinoma of the pharynx, larynx, hypopharynx, and cervical esophagus. These patients ranged in age from 48 to 76 years (average 64 years). Thirteen were male and three were female. Seven patients had previous radiation therapy and two patients had undergone previous laryngectomy. In 15 patients the histologic diagnosis of the primary tumor was squamous cell carcinoma and one patient with a cervical esophageal tumor had adenocarcinoma.

The primary tumor was located in the cervical esophagus in five patients, four of whom had squamous cell carcinoma, and one patient who had adenocarcinoma. These lesions were locally extensive, but there was no extension through the esophageal wall. Lymph node metastasis was confirmed in two patients. The patient with adenocarcinoma had metastasis to two celiac lymph nodes and one other patient with squamous cell carcinoma had metastasis to three cervical nodes.

The hypopharynx was the site of the primary tumor in seven patients, all of whom had squamous cell carcinoma. Lymph node metastasis to the cervical region was confirmed in three patients.

Two patients had primary laryngeal tumors, both squamous cell carcinoma. One of the patients had positive cervical nodes.

One patient with tumor on the posterior pharyngeal wall showed evidence of cervical metastasis at the time of presentation.

One patient initially presented with an unknown primary and a posterior cervical mass. Initially he was treated with radiation therapy and a radical neck dissection. He then developed laryngeal carcinoma which was treated by total laryngectomy. The lesion recurred and he was surgically salvaged by total pharyngoesophagectomy. There was tumor at the superior margin of the dissection, as well as invasion of the thyroid gland requiring further radiation. One patient with tumor on the posterior pharyngeal wall showed evidence of cervical metastasis at the time of presentation.

RONDI K. WALKER, M.D., Chief Resident, Section of Otolaryngology; C. ELTON CAHOW, M.D., Professor and Vice Chairman, Department of Surgery; CLARENCE T. SASAKI, M.D., Chief, Section of Otolaryngology, Professor of Surgery; all of the Department of Surgery, Section of General Surgery and Otolaryngology, Yale University School of Medicine.

Reprint requests: Department of Surgery, Section of Otolaryngology, Yale University School of Medicine, 333 Cedar Street, New Haven, CT 06510 (Dr. Sasaki).

Six patients underwent bilateral neck dissections (functional or radical) and three patients underwent unilateral neck dissection (functional or radical). The surgical procedure averaged eight hours, an average of three units of blood was given intraoperatively, and 6L was the average intraoperative fluid replacement. A primary pharyngogastric anastomosis was carried out in all patients. None of the 16 patients developed an anastomotic fistula.

Results

Survival (see Table 1)

Ten patients are alive and eating well ten days to three years (average 13 months) after gastric pull-up. Nine patients have no evidence of recurrent disease, and one patient had a tracheal recurrence at three years which has been treated with laser excision. Two patients died at five months and three years, secondary to respiratory arrest from tracheal mucous plugging but with no evidence of malignant disease. Three patients died of diffuse disease at five, seven, and eight months postoperatively. One patient previously mentioned died at six weeks secondary to sepsis.

Table 1
GASTRIC PULL-UP RECONSTRUCTION PHARYNGOLARYNGOESOPHAGECTOMY

Survival Results:

Alive with no disease: 9 patients
Average 13 months

Alive with recurrent disease: 1 patient
Tracheal recurrence 3 years

Dead with no disease: 2 patients
3 years and 5 months

Dead of diffuse disease: 3 patients
5, 7 and 8 months

Quality of survival was evaluated by the rapidity with which the patient was able to swallow and to sustain oral alimentation. The length of time before being able to swallow liquids varied from seven to 17 days, for a mean of eight days. Long-term follow-up six weeks to three years postoperatively revealed that most patients were eating well and did not require supplemental nutritional support. This included the patient who died from peritoneal sepsis as well as two patients who died with diffuse disease. One patient who died with diffuse disease was eating poorly at the time of his death. All patients experienced regurgitation of gastric contents if they assumed the recumbent position soon after eating. One patient developed an anastomotic stricture which responded to dilatation. Speech rehabilitation was accomplished by means of an electrolarynx in most cases. One patient developed gastric speech.

Complications (see Table 2)

There was one operative death (6%) which occurred six weeks postoperatively secondary to intraperitoneal dislodgement of a feeding jejunostomy tube and subsequent peritoneal sepsis. Postoperative hemorrhage occurred in two patients. One heavily radiated patient hemorrhaged from a lingual artery nine days following surgery; this was controlled by suture ligation. She subsequently developed an anastomotic stricture which responded well to dilatation and is now eating solid food without difficulty. The other patient required reexploration of the neck wound two hours postoperatively for evacuation of a hematoma and venous ligation. Two patients developed pneumothorax intraoperatively, controlled by means of a closed thoracostomy. One patient developed permanent hypothyroidism as a result of total thyroidectomy performed to remove gross tumor invasion. Transient hypocalcemia was noted in six patients. One patient was found to have an anastomotic leak at the suture line seven days postoperatively which was treated conservatively. He was able to eat by the 14th postoperative day. This patient also experienced an intraoperative subendocardial myocardial infarct from which he recovered uneventfully. One patient developed congestive heart failure postoperatively. The overall operative morbidity was 37%.

Table 2
GASTRIC PULL-UP RECONSTRUCTION PHARYNGOLARYNGOESOPHAGECTOMY

16 patients: 13 men
3 women

Average age 64 years

Operative Mortality: 1 patient - 6%
Sepsis - 6 weeks

Morbidity: 6 patients - 37%
Pneumothorax - 2
Cervical Hemorrhage - 2
Anastomotic Stricture - 1
Confined Anastomotic Leak - 1
Myocardial Infarction - 1
Congestive Heart Failure - 1
Splenectomy - 1

Discussion

Cure rates for patients with cervical esophageal and hypopharyngeal carcinoma are poor. Reconstruction following radical surgical resection must therefore aim at early restoration of normal swallowing and provide a low mortality and morbidity.

Cutaneous flaps,[11] both local and regional, were the first method of reconstruction used. These techniques have the disadvantage of being multistaged and require the creation of a temporary pharyngostomy and esophagostomy. Thus, the patient may spend many of his remaining months in the hospital unable to eat.

The deltopectoral flap, introduced by Bakamijian[12] in the 1960's, was the standard of reconstruction for more than a decade. It has some of the disadvantages of the local cutaneous flaps in that it is a two-staged procedure, and thereby prolongs hospitalization and delays deglutition. However, it is more advantageous than local flaps in that most of the reconstruction may be completed in the first procedure and the pharyngostomy is dependent to the tracheostomy to avoid tracheal contamination. It also provides skin from outside the portal of radiation therapy and can be used with a variety of neck incisions.

Musculocutaneous flaps,[13] particularly the pectoralis major flap, largely replaced deltopectoral flaps in the late 1970's because of their excellent blood supply and ability to transfer large amounts of skin without a delay. The major limitations of these flaps are related to their bulk. They also have a high incidence of postoperative fistulas, but, because of their rich vascular supply, most anastomotic leaks close spontaneously with only conservative wound care, although late strictures are inevitable.

Fasciocutaneous free flaps[14,15] are relatively new in laryngeal reconstruction, but have the advantages of a one-stage, two-team approach. They provide a thin, pliable flap and are associated with minimal morbidity and mortality. These flaps, however, are probably best reserved for less extensive and more superior lesions.

None of the above flap procedures can be used to replace long segments of resected pharynx and esophagus. This limits their use to those patients with tumors that involve the cervical esophagus with extension into the larynx and hypopharynx. Therefore, segments of the gastrointestinal tract including colon, jejunum, and stomach have been utilized to bridge these long defects.

The main advantage of colon interposition grafts[16] is that their length allows for total esophageal replacement on a single vascular pedicle without loss of function. Their drawbacks are increased risk of wound infection and the necessity to create two abdominal and one cervical anastomosis. The incidence of cervical suture line dehiscence is also relatively high and stricture at the cologastric anastomosis secondary to reflux is frequent.

Jejunal autografts[16,17] have a better muscular component than colonic autografts and provide a good size match for the esophagus. The repair may also be accomplished in a single stage. However, the difficult arterial and venous anastomosis lead to a significant rate of bowel necrosis and anastomotic breakdown with fistula and subsequent stricture. Also, anastomoses distal to the thoracic inlet may prove difficult.

Transposition of the entire stomach through the posterior mediastinum without thoracotomy has been found to be best of the visceral reconstructive procedures, and to date provides the shortest hospital stay and quickest recovery of swallowing.

Harrison[16] recently reported 101 patients who had undergone gastric pull-up for hypopharyngeal carcinoma with an average hospital stay of two weeks, and stated that most of his patients were swallowing liquids by the fifth postoperative day. Overall mortality for his series was 11%. All patients experienced intraoperative arrythmias, and bile regurgitation was the most common postoperative complication.

Orringer[9] in 1984 reported 200 cases of laryngopharyngoesophagectomy with gastric pull-up for cancer of the pharynx, larynx, and esophagus. However, in 101 of his 200 patients, the tumor was located in the middle and distal thirds of the esophagus, making resection more difficult. Overall mortality rate was 6%. The major complication was pneumothorax which occurred in 65 of the 200 patients.

Sixty three patients reported by Spiro[10] underwent gastric pull-up reconstruction for resection of tumors in the cervical esophagus (31 patients), hypopharynx (30 patients), and thyroid with obstruction of the esophagus (2 patients). The operative mortality was 10% (operative deaths two to ten weeks after surgery) with a 49% complication rate. Oral feeding began on the ninth postoperative day in most patients, and all patients surveyed were able to maintain their own weight by oral alimentation.

Our series reflects similar findings. We observe that gastric transposition has a high success rate, (all patients were eating by 17 days), a low incidence of anastomotic complications and a short hospitalization. There is a low mortality associated with this procedure (6%) but a significant morbidity (37%) which is related to several factors. Patients who require total laryngopharyngoesophagectomy tend to have poor nutrition, and many have had high-dose radiation therapy in addition to previous surgery. The two patients with postoperative cervical hemorrhage, the one patient who developed an anastomotic stricture, and the one patient with a confined anastomotic leak all had received high-dose radiation therapy. The two instances of pneumothorax were due to the "blind" dissection of the mediastinal esophagus. The one case of intra-abdominal sepsis was related to dislodging of a feeding jejunostomy tube. Because of this, we have avoided jejunostomy in all our other cases, using instead total parenteral nutrition when indicated.

In spite of the significant morbidity associated with the gastric pull-up procedure, we feel the quality of life which these patients experience postoperatively justifies the single-stage surgical resection and reconstruction. Our patients were able to eat without difficulty, and they spent the remaining portion of their lives out of the hospital.

In conclusion, and for the reasons discussed, we feel that gastric transposition most closely approximates the criteria of an ideal reconstructive procedure for patients who require total laryngopharyngoesophagectomy.

REFERENCES

1. Ong GB, Lee TC: Pharyngogastric anastomosis after esophagopharyngectomy for carcinoma of the hypopharynx and cervical esophagus. Br Surg 1969, 56:95-103.
2. LeQuesne LP, Ranger D: Pharyngolaryngectomy with immediate pharyngogastric anastomosis. Br J Surg 1966, 53:105-9.
3. Turner GG: Carcinoma of the esophagus, the question of its treatment by surgery. Lancet 1936, 1:130-4.
4. Stell PM: Esophageal replacement by transposed stomach. Arch Otolaryngology 1970, 91:166.
5. Leonard JR, Maran AG: Reconstruction of the cervical esophagus via gastric anastomosis. Laryngoscope 1970, 80:849.
6. Silver CE. Gastric pull-up operation for replacement of the cervical portion of the esophagus. Surg Gyn Obst 1976, 142:243.
7. Akiyama H, Hiyana M, Miyazono H: Total esophageal reconstruction after extraction of the esophagus. Ann Surg 1975, 182:547.
8. Harrison DF: Surgical repair in hypopharyngeal and cervical esophageal cancer. Analysis of 162 patients. Ann Otol 1981, 90:372.
9. Orringer MB: Technical aids in performing transhiatal esophagectomy without thoracotomy. Ann Thoracic Surg 1984, 38(2):128.
10. Spiro RH, Shah JP, Strong EW, Gerold FP, Bains MS: Gastric transposition in head and neck surgery. Am J Surg 1983, 146:483.
11. Wookey H: The surgical treatment of carcinoma of the pharynx and upper esophagus. Surg Gyn Obst 1942, 75:449.
12. Bakamijian VY: A two-stage method for pharyngoesophageal reconstruction with a primary pectoral skin flap. Plast Reconst Surg 1965, 36:173.
13. Baek S, Lawson W, Biller HF: Reconstruction of hypopharynx and cervical esophagus with pectoralis major island myocutaneous flap. Ann Plast Surg 1981, 7:18.
14. Yang G, Chen B, Gao Y: Forearm free skin flap transplantation. Natl Med J China 1981, 61:139.
15. Baek SM: Two new cutaneous free flaps: The medial and lateral thigh flaps. Plast Reconst Surg 1983, 71(3):354.
16. Surkin MI, Lawson W, Biller HF: Analysis of the methods of pharyngoesophageal reconstruction. Head Neck Surg 1984, 6(5):953.
17. Gluckman JL, McDonough J, Donegan JO: The role of the free jejunal graft in reconstruction of the pharynx and cervical esophagus. Head Neck Surg 1982, 4:360-9.
18. Harrison DF, Thompson AE: Pharyngolaryngoesophagectomy with pharyngogastric anastomsis for cancer of the hypopharynx: Review of 101 operations. Head Neck Surg 1986, 7(8):418.

Dx: recurrent herpes labialis

"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough.**" DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits.**" MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) **. . . response** was **dramatic. HERPECIN-L** . . proven **far superior.**" DDS, PA

"All patients claimed **shorter duration . . .** at **prodromal symptoms** . . . HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

WILLIAM M. CAMERON, M.D.

For

℞

Herpecin-L
Lip Balm
Sig: q.h.
as needed

Primary Malignant Liver Tumors

A Retrospective Review

GERALD G. KENT, M.D., OVLETO CICCARELLI, M.D. AND PETER J. DECKERS, M.D.

ABSTRACT—A retrospective review of 75 patients with primary liver carcinoma diagnosed between 1978 and 1984 was performed. There were 50 males and 25 females ranging in age from four months to 93 years. Symptoms included epigastric distress, right upper quadrant pain, weight loss, malaise, and a palpable mass. Liver function studies were frequently abnormal. Alphafetoprotein was elevated in 19 of 36 patients. Histologic diagnosis was made by percutaneous needle biopsy (36), open biopsy (27), and autopsy (9). Fifty-three hepatocellular carcinomas, ten cholangiocarcinomas, four heptoblastomas, two mixed hepatocellular cholangiosarcomas, two fibrosarcomas and one lymphoma were diagnosed. Resection was performed in 12 patients, with one death. Systemic chemotherapy was administered to 22 patients with four responses. Radiation therapy was given to ten patients with two responses. Forty-two patients (56%) died within three months of diagnosis. At present 11 patients (15%) are alive. Surgical therapy may offer hope for significant survival in selected patients. The exact role of radiotherapy and chemotherapy is undetermined.

Introduction

Primary malignant liver tumors carry a prognosis so grave that the number of deaths each year attributed to the disease approaches the number of new cases diagnosed annually.[1] These tumors have a striking geographic distribution, a relationship to several etiologic agents, and the ability to produce a unique serum protein marker.[2]

The most common primary epithelial malignant liver tumors in adults are hepatocellular carcinoma (HCC) and cholangiocarcinoma. In children, hepatocellular carcinoma and hepatoblastoma are more frequent; fibrolamellar carcinoma is a variant of heptocellular carcinoma more often observed in adolescents and young adults.[3,4]

The major characteristics of HCC vary greatly in different parts of the world. In Africa and Asia, as compared to the Western World, HCC has a higher incidence, is responsible for a greater percentage of cancer related deaths, is seen more frequently in men, and occurs at a younger age.

The etiology of liver carcinoma is most certainly multifactorial, with several known relationships existing between malignant liver tumors and environmental agents. Cirrhosis secondary to alcoholism, malnutrition, alpha-1-antitrypsin deficiency, and hemochromatosis have been associated with liver carcinoma.[2,5,6] A unique association between *hepatitis B virus* (HBV), cirrhosis, and HCC has been well documented.[4] Environmental agents associated with liver cancer include aflatoxins, *Clonorchis sinensis*, and vinyl chloride.[7,8] Oral contraceptives have been related to an increased incidence of benign liver cell adenoma, but not to primary liver cell cancer.[9]

While various presenting signs, symptoms, and liver function abnormalities may be present in patients with primary malignant liver tumors, none is pathognomonic. Alpha-1-fetoprotein is a unique serum protein marker found in high concentrations in fetal blood, maternal blood, and the blood of some adults with HCC and rarely with other tumors.[10] Alpha-fetoprotein may be detectable in 70% of patients with HCC.[10-15]

Materials and Methods

To identify the demographic characteristics of patients in Hartford, Connecticut, with liver cancer and to ascertain the effect of treatment on survival, the medical records of the Hartford Hospital, St. Francis Hospital and Medical Center, John Dempsey Hospital, and Mount Sinai Hospital were retrospectively reviewed for primary malignant liver tumors diagnosed between 1978 and 1984. Follow up data was obtained from the hospitals' tumor registries and the State of Connecticut Tumor Registry. Seventy-five primary malignancies were identified and reviewed.

Results

Age and Sex

Fifty of the 75 patients with primary liver malignancies were males and 25 were females. They ranged in age from four months to 93 years, with a median age of 66 years. Tumors were most commonly found in the sixth through eighth decades of life, with 53 of 75 individuals diagnosed during that time period (Table 1).

GERALD G. KENT, M.D., Surgical Resident, Emmanuel Hospital, Portland, Oregon. OVLETO CICCARELLI, M.D., Surgical Resident, Hartford Hospital. PETER J. DECKERS, M.D., Director of Surgery, Hartford Hospital, Hartford, CT; Professor of Surgery, University of Connecticut School of Medicine, Farmington, CT.

Table 1
DISTRIBUTION OF PATIENTS WITH PRIMARY MALIGNANT LIVER CANCER BY AGE AND SEX

Age (Yrs)	*Male*	*Female*	*Total*
0-10	3	1	4
11-20	–	1	1
21-30	1	2	3
31-40	1	1	2
41-50	5	–	5
51-60	11	5	16
61-70	15	5	20
71-80	10	7	17
81-90	4	2	6
91-100	–	1	1
	50	25	75

Signs and Symptoms

The most common presenting symptoms were abdominal pain, weight loss, and an abdominal mass. More than 75% of the patients had abdominal pain, epigastric distress, or right upper quadrant pain. Weight loss occurred in 26 patients and an abdominal mass was found in 22 patients. Other frequent complaints included malaise, nausea, vomiting, and jaundice. Only two patients were "asymptomatic."

The most common physical finding was hepatomegaly which was present in 52 patients. Jaundice and ascites were present in 20 and 15 patients respectively.

Diagnostic Aids

The liver function tests which were most frequently abnormal were the alkaline phosphatase (AP), serum glutamic-oxaloacetic transaminase (SGOT), and serum glutamic- pyruvic transaminase (SGPT). They were elevated in 49, 49, and 36 patients, respectively. The bilirubin was elevated in 33 patients. Serum albumin levels were depressed in 18 patients. An elevated alpha-l-fetoprotein was present in 19 of 36 patients.

The most frequent radiologic aids used in the diagnosis of primary liver tumors were ultrasonography and the liver/spleen scan, which were positive for mass lesions in 44 and 47 examinations, respectively. Computed tomography examinations were done in 25 patients and were abnormal in 24 individuals. Abnormal angiograms were observed in 23 of 24 patients who underwent arteriography.

Histologic Diagnosis

In 55 patients who did not undergo hepatic resection, definitive diagnosis by percutaneous needle biopsy was made in 36 patients and by open biopsy in 19. In eight patients, open biopsy at the time of resection was performed to confirm the diagnosis. On two occasions, the findings at open biopsy were incidental in patients undergoing cholecystectomy. The diagnosis was made at autopsy in nine patients. In two patients, the liver tumor was an incidental finding at autopsy. In three of the 75 patients, a clinical diagnosis was made on the basis of elevated liver function tests, abnormal alpha-l-fetoprotein and a palpable liver mass, although no biopsy had been obtained.

Pathology

Fifty-three cases of hepatocellular carcinoma, four of hepatoblastoma, and ten of cholangiocarcinoma were diagnosed. There were eight additional cases of primary liver malignancies diagnosed: two mixed hepatocellular cholangiocarcinomas, two fibrosarcomas, one diffuse histiocytic lymphoma, and in three instances, a clinical diagnosis was made as described above. One case of fibrolamellar carcinoma is included among the 53 patients with hepatocellular carcinoma. Thirty patients (40%) had a diagnosis of cirrhosis confirmed histologically (Table 2).

Table 2
PATHOLOGIC DIAGNOSIS OF PRIMARY LIVER TUMORS

Hepatocellular carcinomas	53**
Cholangiocarcinoma	10
Hepatoblastoma	4
Mixed hepatocellular/cholangiocarcinomas	2
Fibrosarcoma	2
Diffuse histiocytic lymphoma	1
Unclassified/clinical diagnosis	3*

*In three patients, the clinical diagnosis of primary liver cancer was made based on increased LFT's, AFP and liver mass

**Includes one case of fibrolamellar carcinoma

Therapy

Twelve patients underwent resection; there was one death. The surgical resections included: Trisegmentectomy (4), right hepatic lobectomy (3), wedge resection (3), and left lateral segmentectomy (2). Three of 12 resections were in children with hepatoblastoma. Systemic chemotherapy was used in treating 22 other patients, with four patients showing improvement. Radiotherapy was used in ten other patients, with two patients showing improvement manifested by a decrease in pain. A variety of chemotherapeutic agents were used; the most common was doxorubicin. Thirty-three patients had no therapy for their primary liver malignancies (Table 3).

Table 3
THERAPEUTIC MODALITIES USED IN THE TREATMENT OF PATIENTS WITH PRIMARY LIVER CANCER

Chemotherapy	22
Resection	12*
Radiation therapy	10
Intra-arterial infusion pump	1
No therapy	33

*Includes: Trisegmentectomy	4 cases
Wedge resection	3 cases
RT hepatic lobectomy	3 cases
LT hepatic lobectomy	1 case
LT LAT segmentectomy	1 case

Survival Data

Of the 75 patients in the study, 42 patients (56%) were dead within three months of diagnosis. Seventeen patients died between three and 12 months after diagnosis. Three patients died more than one year from initial diagnosis, at 15, 16, and 24 months. On two occasions, follow up data were not available (Table 4).

Table 4
SURVIVAL DATA FOR PATIENTS DIAGNOSED WITH PRIMARY LIVER CANCER, 1978 - 1984

<1 Month	16
1-3 Months	26
3-6 Months	9
6 Months-1 Year	8
1-2 Years	3
Alive today	11
Lost to follow up	2

At the time of the study, 11 patients were alive. These included four patients with hepatoblastoma, four patients with hepatocellular carcinoma, one patient with fibrolamellar carcinoma, one patient with fibrosarcoma, and one patient with cholangiocarcinoma. Three of the patients with hepatoblastoma underwent resection and one received chemotherapy as the primary treatment modality. The four patients with hepatocellular carcinoma still alive include one status post right hepatic lobectomy who now has recurrent disease two years postoperatively. One patient status post trisegmentectomy is alive four years later without disease. Another patient who is status post right hepatic lobectomy is alive without disease four years later. Another patient who received chemotherapy only is alive four years after diagnosis without progressive disease. The patient with fibrolamellar carcinoma underwent left lateral segmentectomy and was lost to follow up three years after surgery. At that time, the patient was free of disease. The patient with fibrosarcoma underwent wedge resection and is free of disease four years postoperatively. Three patients with hepatoblastoma are alive at three, four, and seven years postoperatively. The three patients alive at the time of this study who did not undergo surgery include one patient who received ten cycles of doxorubicin for hepatocellular carcinoma who is alive four years later with recurrent disease. One patient with hepatoblastoma who received chemotherapy is free of disease three years after treatment and one patient with cholangiocarcinoma who received radiotherapy is alive two years later with recurrent disease.

In summary, only 11 of 75 patients (15%) diagnosed with primary liver cancer between 1978 and 1984 are alive; of these, two have known recurrent disease. Eight of 12 patients surgically treated were alive at the time of this study.

Discussion

Primary malignant tumors of the liver, while uncommon in the Western World compared to Africa and Asia, remain an important clinical problem. In this review of 75 patients, observed between 1978 and 1984 in four major hospitals in Hartford, Connecticut, only 15% (11/75) remain alive. Fifty-six percent were dead within three months of diagnosis. These results are not significantly different from other reports.[16-19]

The most common primary liver tumor found was hepatocellular carcinoma, which occurred 70% of the time, followed by cholangiocarcinoma (13%), hepatoblastoma (5%), mixed heptocellular-cholangiocarcinoma (2.5%) and fibrosarcoma (2.5%). The histologic distribution in our review was also similar to that of others.[2,20,21]

The most common presenting signs and symptoms in patients with liver malignancies in this review were those of pain, weight loss, and abdominal mass, which are the typical presenting complaints.[19,22,23,24] The abdominal pain described by patients was usually right upper quadrant in location.

The laboratory studies used in this study (SGOT, AP, SGPT, bilirubin) were elevated 69%, 66%, 56%, and 50% of patients, respectively. These results do not differ significantly from others.[2,23] The alpha-l-fetoprotein (AFP) was positive in 19 of 36 patients, which is also consistent with data reported from others.[7,16,21,25,26] There is a wide range in the incidence of detectable AFP, although most authors feel that patients in the Western Hemisphere with hepatocellular carcinoma are less likely to have detectable AFP.[8] In the Western World, where it is not practical to screen people randomly for AFP since the incidence of primary liver cancer is low, the real role for serum AFP monitoring should be in the follow up of patients who have undergone therapy for liver malignancies, and in the differential diagnosis of a liver mass.

Cirrhosis, which has been associated with primary liver malignancies, was evident in 40% of the patients in this study. In other areas of the world, such as Africa and Asia, where there is a high incidence of HBV, the occurrence of cirrhosis with HCC is as high as 80%.[27,28] In the Western World alcoholic cirrhosis is more closely associated with primary liver malignancy than is post HBV cirrhosis.

The therapeutic modalities used in our patients included chemotherapy, radiation therapy, and surgery. Liver transplantation, which may play a greater therapeutic role in the future, has been used with limited success by some.[29,30] In two of our patients, one child with hepatoblastoma and one adult with HCC, chemotherapy was effective therapy.

By the time patients are symptomatic from their disease most tumors are unresectable. In this series 12 patients (16%) underwent resection of their liver tumor and eight are still alive. Our resection rate of 16% falls within the range of resectability rates reported by others. Cady estimates that only 10% of all hepatocellular carcinomas can be resected, while in Lim's review, the resection rate was 48%.[31,32] Reasons for unresectability include bilobar liver involvement, local extension into the inferior vena cava or porta hepatis, the presence of distant metastases, and poor liver function initially.

Cirrhosis, while not an absolute contraindication to resection, can be considered to be a relative contraindication. Operative risk is increased by the increased vascularity, a higher rate of hepatic failure after resection, and reduced regenerative potential of the cirrhotic liver.

Even more striking than the low survival rate in patients with primary liver tumors is the rapidity of the clinical course. Although there was a wide range among individual patients, with one patient having survived more than two years from the time of diagnosis, over half of the patients were dead within three months.

Primary liver tumors, although not a common malignancy in the Western World, remain a most complex and challenging clinical problem. The mortality and natural history of the disease is dreadfully dismal, with most patients dying within a few months from the time of diagnosis. Unfortunately, by the time many of our diagnostic laboratory aids are abnormal, any hope for cure has been lost as surgical resection is then no longer possible. Since the disease is frequently not metastatic at death, cure in the future may lie in orthotopic liver transplantation.

REFERENCES

1. Kew M: Hepatocellular carcinoma. Postgrad Med J 1983, 59(4):78-87.
2. Foster JH, Berman NM: Solid Liver Tumors. Philadelphia 1977, WB Saunders.
3. Schwartz SI, Ellis H: Maingot's Abdominal Operations, 8th Edition, Norwalk CT, Appleton-Century Crofts 1985, 1643-1662.
4. Criag JR, et al: Fibrolamellar carcinoma of the liver. A tumor of adolescents and young adults with distinct cliniclopathologic features. Cancer 1976, 37:2265-2266.
5. Gibson JB: Primary cancer in the liver. J R Coll Surg Edinb 1983, 25(5):275-281.
6. Rawlings WJ, et al: Hepatocellular carcinoma and partial deficiency of alpha-l-antitrypsin. Ann Intern Med 1974, 81:771-773.
7. Lin LY: Primary cancer of the liver: quadrennial review. Scand J Gastroenterol 1970, 6:223-241.
8. Geography of primary liver cancer. Br Med J 1980, 6:381-382.
9. Shar SR, Kew MC: Oral contraceptives and hepatocellular carcinoma. Cancer 1982, 49(2):407-410.
10. Abelev GI: Alpha-fetoprotein in ontogenesis and its association with malignant tumors. Adv Cancer res 1971, 14:295-358.
11. Wepsic TH, Kirkpatrick A: Alpha-fetoprotein and its relevance to human disease. Gastroenterol 1979, 77:787-796.
12. Bloomer JR, et al: Relationship of serum and fetoprotein to the severity and duration of illness in patients with viral hepatitis. Gastroenterol 1975, 68:342-349.
13. Foli AK, Sherlock S, Adinolfi M: Serum alpha-l-fetoprotein in patients with liver disease. Lancet 1969, 2:1267-1269.
14. Mewas C, Buff D, Burtin P: Influence of age in alpha fetoprotein incidence. Lancet 1970, 2:1292.
15. Bagshave A, Parker AM: Age distribution of alpha fetoprotein in hepatocellular carcinoma. Lancet 1970, 2:268.
16. Malt RA, VanVroonhaven TJ, Kohumoto Y: Manifestations and prognosis of carcinoma of the liver. Surg Gynecol & Obstet 1972, 135:361-364.
17. Ervasti J: Primary carcinoma of the liver. Acta Chir Scand 1964, 334:1-65.
18. Bengmark S, Borjesson B, Hafstrom L: The natural history of primary carcinoma of the liver. Scand J Gastroenterol 1971, 6:351-355.
19. Chan KT: The management of primary liver carcinoma. Ann R Coll Surg Engl 1967, 41:253-281.
20. El-Domeiri, et al: Primary malignant tumors of the liver. Cancer 1971, 27:7-11.
21. Al-Sarraf M, Kither K, Voithevicius TK: Primary liver cancer. Cancer 1974, 33(2):574-582.
22. Rosenberg DMR, Ochsner A: Primary carcinoma of the liver. Surgery 1948, 24:1036-1067.
23. Ihde DC, et al: Clinical manifestations of hepatoma: a review of six years' experience at a cancer hospital. Am J Med 1974, 56:83-91.
24. Linder GT, Crook JN, Cohn IJ: Primary liver carcinoma. Cancer 1974, 33:2624-2629.
25. Mabogunje O, Rosen PO, Fortner JG: Liver cell carcinoma during the prime of life. Surg Gynecol & Obstet 1975, 140:75-80.
26. Alpert MR, Uriel J, deNechaud B: Alpha fetoprotein in the diagnosis of human hepatoma. N Engl J Med 1968, 278:984-986.
27. Tull JG: Primary carcinoma of the liver. J Pathol Bacterol 1932, 35:557-566.
28. Anthony PP: Primary carcinoma of the liver: a study of 282 cases in Ngandun Africans. J Pathol 1973, 110:37-48.
29. Iwatsaki S, et al: Total hepatectomy and liver replacement (orthoptic liver transplantation) for primary hepatic malignancy. World J Surg 1982, 6:81-85.
30. Iwatsaki S, et al: Role of liver transplantation in cancer therapy. Ann Surg 1985, 202(4):401-407.
31. Cady B: Natural history of primary and secondary tumors of the liver. Semin Oncol 1983, 10(2):127-134.
32. Lim RC, Bongard FS: Hepatocellular carcinoma. Arch Surg 1982, 119:637-642.

Halloween Appendicitis: Pin Perforation of the Appendix

FREDERICK P. CONFORTI, M.D., DOUGLAS R. SMEGO, M.D.,
AND KIRK K. KAZARIAN, M.D.

ABSTRACT–Roentgenographic examination of the abdomen of a 13-year-old boy allowed identification of a straight pin responsible for an acute appendicitis with perforation. The pin was not removed with the specimen but was identified and retrieved only after additional exploration. Failure to obtain the x-ray preoperatively would have undoubtedly resulted in retention of the foreign body and the possibility of additional complications. Symptoms occurred after the patient had eaten Halloween treats and sweets. Roentgenographic examination of the abdomen may be a valuable adjunct in patients suspected of having acute appendicitis. A high index of suspicion is required to detect ingested metallic foreign bodies at this time of the year.

In 1736, at St. George's Hospital in London, Amyand explored the groin of an 11-year-old boy for what he believed to be an infected scrotal hernia.[1] The hernia sac contained an acutely inflamed appendix that had been perforated by a pin, the encrusted head of which was still within the lumen of the appendix. Mestivier drained an appendiceal abscess and at autopsy the acutely inflamed appendix contained an encrusted pin.[2]

This report emphasizes the use of abdominal roentgenography in patients suspected of having acute appendicitis and how it enabled the surgeon to seek an intra-abdominal foreign body that would have remained undetected had the abdominal roentgenography not been performed.

Case Report

A 13-year-old male presented five days prior to Halloween with an approximately 36-hour history of periumbilical abdominal pain that was localized to the right lower quadrant and was associated with anorexia, nausea, and vomiting. The antecedent history was otherwise unremarkable. Physical examination revealed an ill-appearing child who had a rectal temperature of 38.5 C°. There was guarding, rebound, percussion tenderness, and cough tenderness. The bowel sounds were hypoactive and there was tenderness on rectal examination in the right pelvis. The white blood cell count was 13,000, with a predominance of immature forms. An abdominal x-ray revealed a straight pin in the right lower quadrant of the abdomen. (Figure 1)

The patient was taken to the operating room with a presumptive diagnosis of perforation of the appendix, secondary to an ingested pin. The abdomen was entered through a Rocky-Davis incision and an acutely inflamed perforated appendix with a palpable fecalith was found. Routine appendectomy was performed without complication and the specimen was removed from the field and opened longitudinally. No pin was identified within the appendiceal lumen. Finger exploration of the right pelvis revealed the pin to be loosely embedded in the parietal peritoneum about 4 cm below the incision and just on the abdominal side of the inguinal ligament. The pin had traversed the wall of the tip of the appendix distal to the fecalith, lodging on the undersurface of the abdominal wall in the right lower quadrant. The pin was retrieved without difficulty and the patient recovered uneventfully.

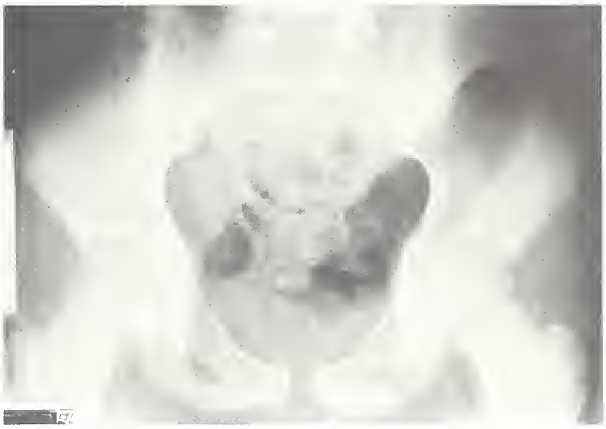


Figure 1

Comment

The routine use of roentgenographic examination of the abdomen in patients with suspected appendicitis is a matter of controversy. In fact, 10-12% of patients with acute appendicitis will have one or more fecaliths that are radiodense. In addition, metallic foreign bodies, such as the one identified in our case, may on occasion be detected. Had a radiograph not been obtained on this patient, retrieval of the foreign body would have been delayed despite laparotomy, thereby predisposing this patient to future complications that might have necessitated an additional operative procedure.

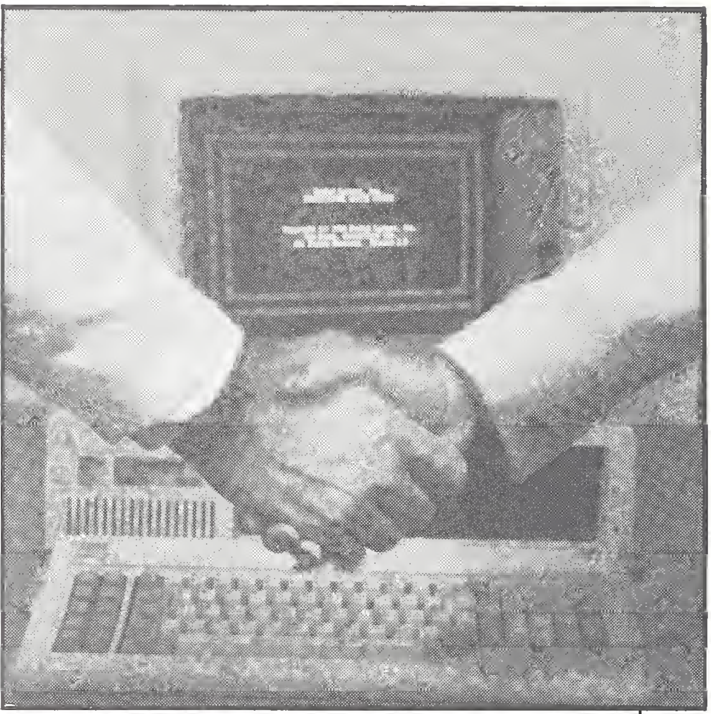
The chronologic occurrence of this case near to Halloween also bears attention. The intentional contamination of candy and other foodstuffs with metallic foreign bodies at this time of the year is a disturbing reality. The patient had eaten Halloween treats and sweets from several sources outside his home during the three days prior to his illness; no other source of the foreign body could be established.

FREDERICK P. CONFORTI, M.D., Chief Surgical Resident; DOUGLAS R. SMEGO, M.D., Attending Surgeon; KIRK K. KAZARIAN, M.D., Surgeon-in-Chief; all of the Department of Surgery, The Stamford Hospital, Stamford, CT.

Reprint requests to: Department of Surgery, The Stamford Hospital, P.O. Box 9317, Stamford, CT 06904 (Dr. Kazarian).

REFERENCES

1. Amyand C: Of an Inguinal Rupture, with a Pin in the Appendix Caeci Encrusted with Stone: Some Observations on Wounds in the Guts. Philosoph Trans 1736, 39:329.
2. Mestivier FF: Observation sur une tumeur, située proche la région ombilicale, du côte droit, occasionée par une grosse épingle trouvée dans l'appendice vermiculare du cecum. J Med Chir Pharmacol 1759, 10:441.



Successful Relationships Are Built Upon Commitment

ProMed™ Systems has maximized efficiency and cost savings for practices throughout Connecticut. The key ingredient has been our ongoing commitment to provide:

- Functional software designed to increase cash flow, decrease accounts receivable and improve staff efficiency.
- Complete installation, training, service and ongoing support.
- New features and benefits; such as an electronic claims network and 6.5% fixed rate financing.

When choosing a system to meet the needs of your practice...ProMed™ makes the decision simple.

ProMed™
SYSTEMS INCORPORATED
221 Whitney Avenue
New Haven, CT 06511
1-800-922-3385
(203) 773-8255

A subsidiary of:
Blue Cross
Blue Shield
of Connecticut

IBM
Authorized
Value Added
Dealer
Personal
Computers

Important Advances in Clinical Medicine

General Surgery

The Scientific Board of the California Medical Association presents the following inventory of items of progress in general surgery. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in general surgery that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on General Surgery of the California Medical Association and the summaries were prepared under its direction.

New Advances in Pancreatic Transplation

Transplantation of the pancreas is an effective means of achieving an insulin-independent, euglycemic state in patients with type I diabetes mellitus and, thus, possibly preventing the late renal, vascular and cardiac complications.

Pancreas allotransplantation is being done with increasing frequency and greater success rates. About 1,000 cases have been reported to date, with more than 400 transplants carried out during the period 1983 through 1985, having a one-year success rate of 44%. Over the past two years, with improvements in surgical technique, one-year graft survival rates of 60% to 75% have been reported. With increasing experience, pancreas transplantation has become a safer procedure. At most major centers in the country, the one-year mortality rate for this operation (about 10%) matches that of renal transplants carried out in diabetic patients. While long-term graft survival results are not available, the longest functioning pancreatic allograft reported is eight years.

Various surgical techniques have been used, including transplantation of the entire gland (with or without the duodenum) or of the body and tail (segmental). The "Achilles heel" of the procedure has been management of the exocrine secretions. A diverse number of techniques has been devised, including polymer injection into the pancreatic duct, anastomosis of the duct to recipient bowel or anastomosis of the donor duodenum encompassing the pancreatic duct to recipient urinary bladder. The worldwide experience shows little difference in graft survival rates between these three techniques, while certain centers have yielded excellent results (74% 22-month graft survival) with the urinary drainage technique. This technique has been adopted in most centers in the country today.

Although the technical aspects of pancreas transplantation are difficult, the greatest obstacle to a successful outcome remains immunologic. Registry analysis accompanying various immunosuppressive therapy protocols shows that graft survival rates are highest (62% at one year for technically successful grafts) with the triple-therapy regimen (low-dose cyclosporine, azathioprine and prednisone). In addition, certain centers are using antilymphocytic globulin prophylactically to decrease the incidence of rejection.

A reliable indicator for the early diagnosis of pancreas graft rejection remains elusive. In patients who have had a simultaneous kidney and pancreas transplant, an elevated serum creatinine level precedes the development of hyperglycemia during a rejection episode of both organs. A distinct advantage of the urinary drainage technique is the ability to follow urinary amylase concentration as a monitor of pancreas graft function. A decrease in urinary amylase often precedes hyperglycemia as an indicator of rejection, and early treatment is initiated on this basis.

Patrick Soon-Shiong, M.D.
Geoffrey White, M.D.
Los Angeles

REFERENCES

Gray DWR, McShane P, Morris PJ: A method for isolation of islets of Langerhans from the human pancreas. Diabetes Nov 1984, 33:1055-1061.

Reprinted from *The Western Journal of Medicine*, June, 1987.

Sollinger HW, Belzer FO, Kalayoglu M: Urinary drainage in pancreas transplantation. Transplant Immunol Lett May 1986, 3:1.

Soon-Shiong P, Swafford G, Levin S: Successful long-term exocrine and endocrine function in the autotransplanted pancreas in man. Pancreas, in press.

Sutherland DER, Kendell D, Goetz FC, et al: Pancreas transplantation. Surg Clin North Am Jun 1986, 66:557-582.

Valente U, Arcuri V, Barocci S, et al: Islet and segmental pancreatic autotransplantation after pancreatectomy: Follow-up of 25 patients for up to five years. Transplant Proc Feb 1985, 16:363-365.

Alternatives to Total Mastectomy for Carcinoma of the Breast

More than 90 years ago Halsted introduced the radical mastectomy as the first approach to the surgical management of breast cancer. This procedure remained the most common operation for carcinoma of the breast until it was replaced by the modified radical mastectomy in which the pectoralis major muscle is not removed, lessening the postoperative deformity. Because survival is not diminished by preserving muscle, the role of even less deforming techniques has been examined in light of our better understanding of the biology of breast cancer.

Removing the entire breast is based on the multifocality of breast cancer and the potential for involvement of the major lactiferous ducts near the nipple. Radiotherapists have long advocated treatment of the whole breast and nipple with external beam radiotherapy or implants, rather than by total breast removal. Early studies showed a high local recurrence rate with irradiation alone. Combining surgical therapy with irradiation, however, appeared as effective as radical mastectomy.

The medical community had been reluctant to accept these observations for a number of reasons, primarily because these trials were not prospective or randomized and they often relied only on clinical staging of the axilla. The highly variable nature of breast cancer and the number of prognostic factors involved made such studies difficult to evaluate. Recent prospective randomized trials have led to a wider acceptance of less-than-total mastectomy.

Veronesi and co-workers reported the first major prospective randomized trial comparing standard surgical treatment with a combination of a surgical procedure and modern radiotherapy. In this trial, patients were randomly selected for a Halsted radical mastectomy or quadrantectomy with axillary lymph node dissection and postoperative radiation therapy. Quadrantectomy removes the entire breast quadrant containing the tumor, including overlying skin and surrounding normal tissue. All entered into this trial had tumors less than 2 cm, not centrally located and no clinical evidence of axillary lymph node disease—the American Joint Committee on Cancer's tumor-node-metastasis stage $T_1N_0M_0$. All patients had accurate axillary staging by examination of the resected lymph nodes. There is no statistically significant difference in local control with either treatment and no difference in overall survival or disease-free survival in this trial comparing radical mastectomy with a far-less-deforming operation and radiotherapy.

The National Surgical Adjuvant Breast Project (NSABP) reported the findings of a trial that extend the observations of Veronesi and associates. In this trial, eligible patients could have a primary tumor as large as 4 cm with or without palpable axillary lymph nodes ($T_{1\text{-}2}N_{0\text{-}1}M_0$). Patients were randomly assigned to one of three different treatment modalities: the modified radical mastectomy; segmental mastectomy and axillary lymph node dissection, or segmental mastectomy, and axillary node dissection and postoperative irradiation. Unlike the quadrantectomy, the segmental mastectomy removes only the tumor and a small rim of surrounding normal tissue and is even less deforming. Among the 1,843 women randomly selected in this study, few local recurrences were actually seen in the mean follow-up period of 39 months. The lowest focal failure rate is among patients treated with segmental mastectomy and radiation therapy. The actuarial predicted five-year local recurrence rate for segmental mastectomy plus irradiation is 7.7%. Segmental mastectomy without irradiation, however, has a predicted five-year local recurrence of 27.9%. No significant difference in overall survival or disease-free survival is seen among the three different forms of treatment. A longer follow-up will be necessary to answer the questions related to salvage mastectomy for local recurrences and the late effects of treatment.

These trials clearly show that treatment involving less than mastectomy combined with radiation therapy is effective in patients with T_1 and T_2 carcinoma of the breast. Treatment comprising less than total mastectomy without irradiation has a much higher local recurrence rate but may be acceptable for some patients, particularly the elderly, in whom radiation therapy is not desirable. The cosmetic results are far superior to those from mastectomy, and overall survival appears the same. It must be remembered that in both trials, all patients had infiltrating breast cancer, tumor-free margins at operation, tumors not centrally located and had an axillary dissection. Physicians must select their patients with caution, for there are certain groups who should not be considered for a breast-conserving operation. Patients with clinical multifocality, large tumors, centrally located tumors, involvement of the skin, nipple or areolar complex and inflammatory breast cancer or unusual histologies generally should not be treated in this manner.

Armando Giuliano, M.D.
Los Angeles

REFERENCES

Fisher B: The revolution in breast cancer surgery: Science or anecdotalism? World J Surg 1985, 9:655-666.

Fisher B, Bauer M, Margolese R, et al: Five-year results of a randomized clinical trial comparing total mastectomy and segmental mastectomy with or without radiation in the treatment of cancer. N Engl J Med Mar 14 1985, 312:665-673.

Veronesi U, Zucali R, Luini A: Local control and survival in early breast cancer: The Milan trial. Int J Radiat Oncol Biol Phys Apr 1986, 12:717-720.

Treatment of Renovascular Hypertension

Goldblatt 50 years ago produced systemic hypertension in dogs by constricting the renal artery. His published report in 1935 was the first to document a causal relationship between renovascular disease and hypertension. This landmark observation is the basis of our modern understanding of renovascular hypertension. It is now well recognized that significant renal artery stenosis may lead to hypoperfusion of renal parenchyma inducing inappropriate overproduction of renin. By means of the renin angiotensin axis, hypertension is produced.

Because renovascular hypertension is relatively uncommon, it is important to appreciate the clinical features that distinguish it from other forms of hypertension. These include severe diastolic hypertension (greater than 115 mm of mercury), an onset of severe hypertension abruptly and at the extremes of life, evidence of systemic atherosclerosis and the presence of an abdominal bruit. Additionally, this disorder appears to have a racial predilection, being more common in whites. Although these features are typical of patients with renovascular hypertension, the absence of one or more features does not exclude the diagnosis. In our experience, the most reliable clinical predictor of the disorder has been severe diastolic hypertension.

Anatomic and functional studies are required to establish the diagnosis. Arteriography is the primary diagnostic modality because less-invasive tests, such as rapid sequence intravenous pyelography and isotopic renography, are imprecise and nondiagnostic in approximately 50% of patients with this disorder. The functional significance of arteriographically shown renal artery stenoses is confirmed by selective renal vein renin assays, split renal function studies or both. These studies are essential, for only 50% of such lesions are functionally significant and the cause of a patient's hypertension.

We consider vascular reconstruction of the renal artery the preferred method of treatment for patients with renovascular hypertension. Recent studies report a mortality rate of 0.5% to 2% and a technically successful operative result in more than 95% of cases following revascularization. Cure of hypertension occurs in 40% and significant improvement in 51%. Also, revascularization preserves and in selected circumstances improves overall renal function. These salutary effects are long lasting, for a recent report with a 15-year follow-up documented excellent blood pressure control and a reduction in morbid events and death from cardiovascular causes following renal revascularization.

Medical management of the disorder has been aided by the recent development of specific angiotensin-converting enzyme inhibitors. Whether medical therapy using these inhibitors and the potent arsenal of other antihypertensive medications is comparable with surgical treatment is not known. Our preference for operative management is based on two reports prospectively contrasting surgical and medical treatment that have shown significant preservation of renal function, better control of hypertension and improved survival with surgical treatment.

Percutaneous transluminal angioplasty (PTA) of the renal arteries is a relatively new approach to treating renovascular hypertension. National experience and follow-up are limited, but short-term results approaching those of surgical treatment have been published for specific lesions. In particular, fibrodysplastic and segmental atherosclerotic stenoses appear to respond well to PTA. Conversely, atherosclerotic lesions affecting the ostia of the renal artery and diffuse atherosclerotic involvement of the renal artery respond poorly. The long-term outcome of such dilatations is unknown and awaits further study. At present, the exact role PTA will ultimately play in treating this disorder remains to be determined.

To distinguish patients with renovascular hypertension from the hypertensive population requires knowledge of the disorder's characteristic clinical presentation, a high index of suspicion and the use of anatomic and functional data. The ability of present treatment options to cure or significantly improve this particular form of hypertension with a subsequent reduction in morbid events makes it imperative for practicing physicians to do so.

Fred A. Weaver, M.D.
Los Angeles

REFERENCES

Dean RH: Renovascular hypertension. Curr Probl Surg Feb 1985, 22:3-67.

Dean RH, Englund R, Dupont WD, et al: Retrieval of renal function by revascularization: Study of preoperative outcome predictors. Ann Surg Sep 1985, 202:367-375.

Dean RH, Krueger TC, Whiteneck JM, et al: Operative management of renovascular hypertension. J Vasc Surg Jan 1984, 1:234-242.

Martin LG, Price RB, Casarella WJ, et al: Percutaneous angioplasty in clincal management of renovascular hypertension. Initial and long-term results. Radiology Jun 1985, 155:629-633.

Stanley JC, Ernst CB, Fry WJ (Eds): Renovascular Hypertension. Philadelphia, WB Saunders, 1984.

Anal-Sphincter Saving Operations

Preservation of the anorectal sphincter mechanism and the lower segment of the rectal muscle after colectomy and removal of the rectal mucosa for certain benign disorders was described several decades ago and was applied to patients with ulcerative colitis in 1947. The endorectal pull-through procedure did not gain extensive clinical application until 1964, when it was used in conjunction with a colonic pull-through for Hirschsprung's disease. A resurgence of interest in the endorectal ileal pull-through procedure for ulcerative colitis and colonic polyposis has occurred during the past decade as a result of better clinical results after using more precise operative techniques. During the past ten years about 1,400 such operations have been carried out by surgeons at certain large medical centers in the United States and Europe.

The endorectal ileal pull-through was initially constructed without a reservoir. During the past ten years, however, because of stool frequency and urgency, a reservoir was incorporated in the lower end of the pull-through segment to serve as a storage area. A protective ileostomy for two to four months has been found essential to minimize the risk of postoperative pelvic infection. Three basic reservoirs have been used: the S-shaped, the J-shaped and the lateral isoperistaltic ileal reservoir. Although each of the various reservoirs has provided satisfactory functional results for most patients undergoing the operation, about 20% to 30% of patients have needed a repeat operation or have had less-than-optimal function after the operation. The lateral reservoir may be revised most easily.

The neurogenic sensory and discriminatory mechanisms remain largely intact, and good continence can be achieved if the rectal mucosa is removed down to the dentate line, providing the anorectal sphincter muscle is not disturbed. The length of the rectal muscle retained above the ileoanal anastomosis need not be longer than 4 to 5 cm. Long rectal muscle segments have caused compression of the ileal reservoir and in some cases produced acute angulation of the ileum or reservoir, contributing to the development of partial outlet obstruction with stasis and reservoir inflammation.

Certain patients with obesity, with tight anal sphincter spasm and those with severe rectal mucosaal disease may do better postoperatively if the pull-through operation is constructed without a reservoir. If a reservoir is used, the configuration appears to be less important than the assurance that the reservoir is short enough to avoid stasis and that the spout extending to the ileoanal anastomosis is short. Although patients generally will have less fecal urgency, frequency and nocturnal soiling with a reservoir (mean, 6.5 movements per 24 hours in three months) than without a reservoir (mean, 9.8 movements per 24 hours in three months), by six months the patients without a reservoir will have a similar number of movements as those with a reservoir (5 to 7 per 24 hours).

Long-term follow-up with close attention to a patient's bowel pattern will lead to early detection of reservoir enlargement, outlet obstruction, ileoanal anastomotic stenosis, peri-pull-through sinuses and other complications. Almost all of these problems are surgically correctable if treated early. Most medications can be discontinued within six months in patients who do not have complications. Patients may return to full physical activities including competitive sports within three to four months. Of 150 patients with the pull-through operation done in our hospital, 136 are currently functioning well; review of the last 100 consecutive patients shows that all but 2 are currently progressing well (98%), indicating the decreased number of complications as our clinical experience has increased. The endorectal ileal pull-through operation is technically difficult, but close attention to the many details of operative and postoperative care is likely to provide gratifying long-term results and a very satisfactory alternative to a permanent ileostomy or Kocks's pouch.

Eric W. Fonkalsrud, M.D.
Los Angeles

REFERENCES

Funkalsrud EW: Endorectal ileal pullthrough with isoperistaltic ileal reservoir for colitis and polyposis. Ann Surg Aug 1985, 202:145-152.

Martin LW, Fsicher JE: Preservation of anorectal continence following total colectomy. Ann Surg Dec 1982, 196:700-704.

Metcalf AM, Dozois RR, Kelley KA, et al: Ileal 'J' pouch-anal anastomosis: Clinical outcome. Ann Surg 1985, 202:735-739.

Treatment of Asymptomatic Gallstones

There are three major issues in the treatment of asymptomatic gallstones. Should prophylactic cholecystectomy be done for asymptomatic gallstones? Are there any special factors that justify prophylactic cholecystectomy? Is incidental cholecystectomy indicated at laparotomy for another condition? Unfortunately, prospective and randomized trials to answer these questions have not been done.

Arguments used to justify prophylactic cholecystectomy include the "high" incidence of the likely development of symptoms or complications and the "small" risk of carcinoma of the gallbladder developing. The risk of carcinoma is so small that it is not an issue. In a study by Gracie and Ransohoff, the likelihood of symptoms developing in patients found to have asymptomatic gallstones was apparently 2% per year; this figure plateaued off so that at 15 years only 18% of patients became symptomatic. In those persons who become symptomatic, generally biliary colic occurs rather than a complication so that there does not appear to be increased morbidity or mortality in delaying cholecystectomy until symptoms appear. Therefore, it is difficult to justify phrophylactic cholecystectomy for the average patient with asymptomatic gallstones.

Special factors reportedly increase the risk of complications of gallstones, thereby justifying prophylactic cholecystectomy. These include diabetes mellitus, nonvisualization of the gallbladder on oral cholecystography, stones larger than 2 cm, a calcified gallbladder, young age, patients requiring immunosuppression and pigmented stones associated with hemolytic anemias. Although reasonable arguments can be made for prophylactic cholecystectomy under these conditions, firm data are lacking. Diabetes, which according to surgical dogma is a risk factor for an adverse outcome in gallbladder disease, has recently been questioned as being an independent risk factor. Although most likely some risk factors justify prophylactic cholecystectomy, one has to fall back on clinical judgment rather than firm data in making a decision. It would generally be prudent to recommend prophylactic cholecystectomy in a relatively young patient with another of the aforementioned risk factors.

Finally, despite my personal aversion to incidental procedures during laparotomy for another reason, incidental cholecystectomy does seem to be reasonable as long as great care is taken against contamination.

Richard A. Crass, M.D.
Portland, Oregon

REFERENCES

Gracie WA, Ransohoff DF: The natural history of silent gallstones—The innocent gallstone is not a myth. N Engl J Med 1982, 307:798-800.

Sandler RS, Maule WF, Baltus ME: Factors associated with postoperative complications in diabetics after biliary tract surgery. Gastroenterology 1986, 91:157-162.

Schubert TT: Hepatobiliary system is sickle cell disease. Gastroenterology 1986, 90:2013-2021.

Fine-Needle Aspiration of Thyroid Nodules

Fine-needle aspiration of thyroid tumors is an increasingly popular method of obtaining a preoperative cytologic diangosis and determining the malignant potential of a thryoid mass. In addition, other thyroid abnormalities such as chronic lymphocytic thyroiditis can be cytologically confirmed. Many large series have shown that fine-needle aspiration of the thyroid can be done with a high degree of safety and clinical specificity. These series show that cytologically unsatisfactory specimens occur in about 15% to 20% of aspirates. With proper physician training and experienced cytologists, false-negative rates of 2% and false-positive rates of about 20% can be achieved.

Comparative studies of fine-needle apsiration with large-needle (TruCut) or drill-needle biopsies have shown that fine-needle aspiration may have a higher diagnostic yield than the other large-needle techniques. The overall accuracy of fine-needle aspiration of the thyroid gland depends on the ability of the physician doing the aspiration, the adequacy of specimen preparation and the experience of the cytologist.

The role of fine-needle aspiration biopsy does not need to be limited to specialized referral centers, but does require that the cytologist and the physicians doing the procedures become proficient with this technique. Complications have been reported in most series, but these have been relatively benign. In addition to the diagnosis of primary thyroid neoplasms, fine-needle aspiration may also show the presence of lymphoma or metastatic carcinoma. Adding monoclonal antibody examination to the routine cytologic preparations may improve the overall accuracy and expand the indications for the fine-needle technique.

Currently, fine-needle aspiration biopsy of the thyroid should be considered a valuable diagnostic tool in the preoperative evaluation of a thyroid nodule. When the physician and the interpreting pathologist are well trained and comfortable with this technique, a high degree of accuracy should be obtained. We recommend fine-needle aspiration of thyroid nodules as the initial diagnostic test in evaluating thyroid tumors. All suspicious lesions should be surgically excised, and the failure to obtain adequate diagnostic material on needle biopsy or the failure of a "cold" nodule to respond to suppressive therapy mandates surgical excision.

Eugene A. Woltering, M.D.
Portland, Oregon

REFERENCES

Boey J, Hsu C, Wong J, et al: Fine-needle aspiration versus drill-needle biopsy of thyroid nodules: A controlled clinical trial. Surgery Jun 1982, 91:611-615.

Schmid KW, Hofstadter F, Propst A Jr, et al: A fourteen year practice with the fine needle aspiration biopsy of the thyroid in an endemic area. Pathol Res Pract Jun 1986, 181:308-301.

Silverman JF, West RL, Larkin EW, et al: The role of fine-needle aspiration biopsy in the rapid diagnosis and management of thyroid neoplasm. Cancer Mar 15 1986, 57:1164-1170.

Heart and Heart-Lung Transplantation

Heart transplantation has evolved from a clinical trial in 1968 to a therapeutic option in 1987 for patients with end-stage heart disease. To place the acceptance of heart transplantation in perspective, 62 heart transplants were done in 1981 as compared with 719 in 1985. The success of heart transplantation has been greatly improved with advances in immunosuppression. Before the use of cyclosporine, the one-year survival in 1980 was 63%. In 1987, one-year survival has increased to 82%.

With improved survival, age criteria for transplantation have been modified. Before 1980, patients older than 50 years were not considered. Currently patients to the age of 60 are thought to be reasonable candidates depending on their "physiologic" age. Infants and children are now being transplanted with the same expected survival rate as adults. Patients in cardiogenic shock are being maintained with the left ventricular assist device or the total artificial heart; 30% to 50% of them go on to successful cardiac transplantation.

In 1981 heart-lung transplantation was introduced as a therapeutic possibility for patients with irreversible pulmonary hypertension. The program at Stanford continues to evolve. So far, 41 heart-lung transplants have been done, 19 for primary pulmonary hypertension, 21 for Eisenmenger's complex and retransplantation in 1 patient with graft failure. Survival continues to improve with an actuarial survival rate of 65% and 54% at one and three years, respectively. Improved survival has come with better graft protection during organ recovery and a lower perioperative mortality from 28% in 1984 to 12% currently.

Potential heart-lung recipients are patients with primary pulmonary hypertension, congenital heart disease with Eisenmenger's physiology, fibrosing alveolitis and pulmonary fibrosis. Our criteria have recently expanded to include patients with cystic fibrosis.

At present, clinical heart-lung transplantation is limited by donor availability. Only 10% to 15% of the patients evaluated for organ recovery will be suitable for heart-lung donation. Aspiration or neurogenic pulmonary edema are ordinarily responsible for this low yield.

The future of heart and heart-lung transplantation will be influenced by improved immunosuppressive therapy, the use of mechanical devices as a bridge to transplant and, more importantly, by an increased number of available donor organs. As the public and the medical profession become more aware of the efficacy of transplantation, a stronger commitment to organ donation may be expected to provide an increasing number of patients with end-stage organ failure hope for survival through transplantation.

Vaughn A. Starnes, M.D.
Norman E. Shumway, M.D.
Stanford, California

REFERENCES

Borel JF, Feurer C, Gubler HU, et al: Biological effects of cyclosporin A: A new antilymphocytic agent. Agents Actions 1976, 6:468-475.

Over PE, Stinson EB, Jamieson SE, et al: Cyclosporin-A in cardiac allografting: A preliminary experience. Transplant Proc 1983, 15:1247-1252.

Starnes VA, Jamieson SW, Current status of heart and lung transplantation. World J Surg 1986, 20:442-449.

Brain Death

Victims of profound and irreversible brain damage now survive longer because of improved critical care. In 1968 the ad hoc committee of Harvard Medical School published its definition of irreversible coma, which clinically defined brain death. In recent years, it has become apparent that this definition, which requires that the entire central nervous system (CNS) is functionless, is not always helpful clinically. The critical determination is not whether CNS demise has already occurred, but the establishment that this demise is inevitable. Brain death inevitably follows brain-stem death, and this death is a process, not an event. It has now become clear that spinal reflexes, auditory evoked brain-stem potentials and electroencephalographic activity can persist after CNS death. The persistence of these neurologic functions does not alter the inevitability of death, but it often complicates the decision to terminate support.

The prompt and accurate diagnosis of brain death is extremely important. To continue artificial support following brain death deprives a patient of a dignified death and needlessly prolongs the anguish of relatives. Continued support exhausts precious health care resources that could be used to care for patients with a possibility of recovery. For successful transplantation, brain death must be established before organ deterioration precludes harvesting, but physicians involved in the transplant procedure cannot certify brain death. Last, a clear definition of brain death is important for legal reasons.

The criteria for brain death rest on four important principles: (1) irreversible structural damage to CNS shown by computed tomographic scanning or magnetic resonance imaging; (2) factors that depress the brain stem must be exluded—alcohol and barbiturates, muscle relaxants, hypothermia and gross metabolic imbalance; (3) the absence of brain-stem reflexes—corneal, pupillary, gag and oculovestibular, and (4) the absence of respiratory effort during a satisfactory apnea trial. If any of these criteria cannot be fulfilled, a confirmatory test to show the absence of cerebral blood flow is mandatory. These include radionuclide flow studies, digital intravenous arteriography and standard four-vessel cerebral angiography. The choice of which test to use is largely based on individual physician preference and institutional support. A portable bedside flow scan is fast and convenient, but the other tests are acceptable substitutes.

Scrupulously adhering to these principles and criteria allow physicians to provide compassionate care to both patient and family while maximizing the use of hospital resources and availability of organs for transplantation and minimizing medicolegal risk.

A. Craig Eddy, M.D.
Charles L. Rice, M.D.
Seattle

REFERENCES

Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death: A definition of irreversible coma. JAMA 1968, 205:337-340.

Goodman JM, Heck LL, Moore BD: Confirmation of brain death with portable isotope angiography: A review of 204 consecutive cases. Neurosurgery Apr 1985, 16:492-497.

Outwater KM, Rockoff MA: Apnea testing to confirm brain death in children. Crit Care Med Apr 1984, 12:357-358.

Ropper AH, Kennedy SK, Russell L: Apnea testing in the diagnosis of brain death. J Neurosurg 1981, 55:942-946.

Vatne K, Nakstad P, Lundar T: Digital subtraction angiography (DSA) in the evaluation of brain death: A comparison of conventional cerebral angiography with intravenous and intraarterial DSA. Neuroradiology 1985, 27:155-157.

ADVISORY PANEL TO THE SECTION ON GENERAL SURGERY

Norman Christensen, M.D.
Advisory Panel Chair
CMA Scientific Board Representative
Eureka

William E. Trumbull, M.D.
CMA Section Chair
Section Editor
Santa Monica

A.R. Moossa, M.D.
CMA Section Secretary
University of California, San Diego

Allen H. Johnson, M.D.
CMA Section Assistant Secretary
San Jose

Bruce W. Branson, M.D.
Loma Linda University

John A. Collins, M.D.
Stanford University

F. William Blaisdell, M.D.
University of California, Davis

G. Robert Mason, M.D.
University of California, Irvine

Herbert I. Machleder, M.D.
University of California, Los Angeles

Haile Debas, M.D.
University of California, San Francisco

Arthur J. Donovan, M.D.
University of Southern California

Earl F. Wolfman, M.D.
Sacramento

Ronald Tompkins, M.D.
Los Angeles

Robert Barone, M.D.
San Diego

1987 Legislation

GOVERNMENT RELATIONS

The following summary of 1987 legislation is intended to provide you with an overview of the significant new laws affecting the practice of medicine. Since tort reform and Medicare Assignment proposals have received extensive coverage, and will continue to be addressed in other publications, they have been omitted from this summary. In addition, a few measures that were defeated are included for your information. Any questions concerning the new laws should be directed to Cam Staples, CSMS Director of Government Relations, at the Society's New Haven office.

PA 87-248

AN ACT CONCERNING THE REPORTING OF UNSAFE OR UNSKILLED MEDICAL PRACTICE

Summary: The state retirement system grants a disability retirement allowance to employees who, because of a disability suffered on or off the job, are unable to perform their state duties. A gubernatorially appointed board of seven physicians determines an applicant's entitlement to or continuance of disability retirement.

This act allows a board member, after reviewing all testimony and documentary evidence, to file a petition with the Department of Health Services (DOHS) to investigate a physician's possible unsafe or unskilled treatment of a person seeking disability retirement. Petitions must be filed with and investigated by DOHS in accordance with department procedures concerning complaints against physicians for unsafe or unskilled practice.

Under the act, the board's record of the petition and related proceedings are confidential to the same extent as DOHS records concerning the investigation of complaints against physicians.

Effective Date: October 1, 1987

Background

Confidentiality of Records

Under existing law, DOHS has 18 months from the filing of a petition alleging unsafe or unskilled medical practice to complete its investigation and decide whether probable cause exists to charge the physician and begin proceedings. During the investigation, the record is confidential and cannot be disclosed to a third party unless requested by the physician. At the end of the 18-month period, the investigation record becomes public. If the department determines probable cause exists to issue charges, the entire record is public unless DOHS determines the physician is an appropriate candidate for a rehabilitation program, and the physician agrees to participate.

PA 87-354

AN ACT CONCERNING THE PRONOUNCEMENT OF DEATH BY A REGISTERED NURSE

Summary: This act permits a licensed registered nurse who is in charge of a hospice or nursing home, works in a home or residence, or works for a licensed home health care agency to determine and pronounce that a patient is dead if: (1) the death is anticipated; (2) the nurse attests to the pronouncement on the death certificate; (3) the nurse indicates on the certificate the presence, if known, of a contagious disease; and (4) a licensed physician certifies the death and signs the death certificate within 24 hours after the nurse pronounces the death.

The act requires the Department of Health Services (DOHS) to adopt regulations on procedures to implement the act. The department must notify everyone affected by the act, including hospices, nursing homes, physicians, emergency medical technicians, funeral directors, medical examiners, and home health care agencies.

The act appropriates $16,500 to DOHS for FY 1987-88 to meet these responsibilities.

Effective Date: October 1, 1987

PA 87-389

AN ACT CONCERNING ACQUIRED IMMUNE DEFICIENCY SYNDROME

Summary: This act directs the Department of Health Services (DOHS) to provide funds to private agencies offering education, counseling, and prevention services to people suffering from acquired immune deficiency syndrome (AIDS) and their families. Any agency receiving department funding for AIDS testing must give priority to those in high risk groups and base their fees on a person's ability to pay. The act also requires DOHS to provide funds to local health departments for innovative AIDS education and prevention programs. The DOHS commissioner must adopt regulations for these funding programs.

DOHS itself must establish an AIDS public information program involving distribution of pamphlets, films, and public service announcements.

Finally, the act establishes an AIDS Task Force to act as an advisory body to the health services commissioner.

Effective Date: July 1, 1987

Further Explanation

AIDS Task Force

The task force must work with DOHS in the planning of programs for AIDS victims and their families. Members include: (1) a local health director, a representative from an AIDS advocacy group, and a person from a list provided by the Connecticut Alcohol and Drug Abuse Commission, all appointed by the governor; (2) a health care provider appointed by the Senate president pro tempore; (3) a person who has tested positive for the AIDS virus, appointed by the House speaker; (4) a licensed nurse appointed by the Senate minority leader; (5) a physician who treats AIDS patients, appointed by the Senate majority leader; (6) an educator appointed by the House majority leader; (7) a second local health director appointed by the House minority leader; and (8) any other persons considered appropriate by the DOHS commissioner.

The task force must advise the DOHS commissioner for the rest of his term or four years, whichever is longer. It must annually report its findings and recommendations, in conjunction with DOHS, to the Public Health Committee. The first report is due by January 1, 1988.

PA 87-392

AN ACT REQUIRING THE REPORTING OF BURN INJURIES TO THE STATE FIRE MARSHAL

Summary: This act requires the attending physician, the director of a health care institution, or any health care provider to report the treatment of specified burn injuries immediately, by phone, to the fire marshal of the town where the burn occurred, and within 48 hours to the state fire marshal, in writing. Treatment for the following must be reported:

1. second or third degree burns to 5% or more of the body;
2. any burn to the upper respiratory tract;
3. an injury to the larynx due to inhalation of superheated air; and
4. each burn injury which may result in death.

The state fire marshal's office must provide forms for the written reports. These reports must be sent to the bureau of state fire marshal and safety services for compilation and publication of a statistical abstract. An annual abstract must be given to local fire marshals and the General Assembly.

The act specifies that the primary responsiblity for fire investigations still rests with the appropriate local authority.

Effective Date: January 1, 1988

PA 87-394

AN ACT CONCERNING LEAD POISONING

Summary: This act amends existing lead poisoning reporting requirements applicable to health practitioners, institutions, and laboratories and lowers the level at which someone is considered to be suffering from lead poisoning.

It establishes a lead poisoning prevention program in the Department of Health Services (DOHS). Within the program, the DOHS commissioner must: (1) conduct educational and publicity activities on lead poisoning prevention, (2) establish an early diagnosis and detection program that would routinely screen young children for lead poisoning, and (3) attempt to identify dwellings and areas with toxic levels of lead.

The act also requires owners of dwellings inhabited by young children to remove or cover materials containing toxic levels of lead.

Finally, the commissioner must adopt regulations concerning certifying lead inspectors and lead abatement and removal contractors.

Effective Date: July 1, 1987

Further Explanation

Lead Reporting Requirements

Existing law requires certain health care practitioners, facilities, and agencies to report any person having or suspected of having a certain level of lead in the blood. This act lowers the reportable level from .04 milligrams per 100 grams of blood to .025 milligrams.

Under existing law, the report must be made to the health services commissioner and to the local director of health within 48 hours of learning the blood lead level. The local health director must then investigate the source of the increased lead level and report his findings to the local building official. That official must take action to prevent further exposure to the lead source. Within 30 days of the conclusion of his investigation, the local health director must report to the DOHS commissioner, indicating action taken to prevent further lead poisoning and any necessary relocation of families.

Under this act, the local health director's report must also include information on identification and location of the lead poisoning source and other information required by the commissioner according to regulations. The commissioner must keep thorough records of all reports indexed geographically to identify areas with a relatively high incidence of lead poisoning. He must provide interested parties with a quarterly report summarizing the examinations.

PA 87-433

AN ACT CONCERNING THE ADMINISTRATION OF MEDICATION IN DAY AND RESIDENTIAL PROGRAMS AND FACILITIES

Summary: This act allows trained people who are not nurses or physicians to administer medication to people in day programs or living in residential facilities under the jurisdictions of the departments of Children and Youth Services, Correction, Mental Retardation, and Mental Health. Those authorized to administer medication must complete a training program prescribed by regulation and can only administer medication according to written order from a licensed physician or dentist. The act defines "administration of medication" as the direct application except by injection. The departments must also adopt regulations to implement the act.

The act does not apply to certain specific health care institutions and programs (e.g. hospitals, nursing homes, and health care agencies).

Effective Date: Upon passage

Further Explanation

Adoption of Regulations

The act requires the departments responsible for licensing the facilities or programs or, if licensing is not required, departments responsible for the people in these facilities and programs, to adopt implementing regulations.

Each affected department must adopt regulations in consultation with an advisory task force consisting of the commissioners of health services, mental health, mental retardation, correction, and children and youth services or their designees. The task force must report to the Public Health Committee by November 1, 1988.

PA 87-510

AN ACT CONCERNING A STUDY OF THE PROSPECTIVE PAYMENT SYSTEM, AND REVISIONS TO THE PROSPECTIVE PAYMENT SYSTEM

Summary: The Commission on Hospitals and Health Care (CHHC) must report to the General Assembly on the effectiveness of the prospective payment system in regulating hospital charges. This act delays the reporting requirement from February 1, 1988 to November 1, 1990, but requires CHHC to submit an interim report by November 1, 1988. The reports must, to the extent practicable, describe the hospital rate setting process, suggest improvements in the system, compare the increase in Connecticut's hospital costs and charges with other states' and the country as a whole, and report any changes in the financial status of hospitals. The commission, in its report, must evaluate the effect of regulations limiting cost shifting on the financial ability of hospitals to serve Medicaid patients.

The act also amends the definition of "outliers" (cases significantly above the average hospital cost or length of stay), clarifies the meaning of gross inpatient and gross outpatient service revenues, and provides an appeals process for self-pay patients discharged after October 1, 1987.

Effective Date: Upon passage, except that the amended reporting requirements take effect October 1, 1987.

PA 87-527

AN ACT ESTABLISHING A COMPREHENSIVE PROGRAM FOR THE TREATMENT AND STUDY OF ACQUIRED IMMUNE DEFICIENCY SYNDROME

Summary: This act provides $4.25 million for programs of study and treatment of acquired immune deficiency syndrome (AIDS) and for other public health-related purposes. Specifically, it provides:

1. $1 million for an endowed chair in law and medicine jointly appointed at the University of Connecticut Health Center and the School of Law for the development of curricula and research about AIDS and other infectious diseases;
2. $1 million at the University of Connecticut Health Center for an endowed chair designed to support a faculty member to direct programs in teaching, research, and patient care concerning infectious diseases;
3. grants-in-aid to municipalities totalling $250,000 to cover the cost of mailing the U.S. Surgeon General's report on AIDS to all residents; and
4. $2 million for grants-in-aid to programs of municipalities, hospitals, colleges, or individuals for the study or treatment of AIDS.

The commissioner of health services must adopt regulations to administer the grant programs.

The act also expands the work of a task force on Medicare supplementary catastrophic health coverage created by PA 87-356. Under the act, this task force must also examine long-term options other than the health reinsurance association (state-mandated insurance pool) for persons with AIDS.

Finally, the act establishes a task force to: (1) review existing studies, and governmental and private agency guidelines concerning AIDS, including methods of transmission of the AIDS virus; (2) assess the magnitude, trends, and nature of AIDS in the state; (3) develop a state policy encouraging confidential testing of those at possible risk; and (4) make recommendations on the most efficient, effective, and compassionate means to protect the civil rights of those infected with the AIDS virus, including those perceived to be at risk of infection, while also recognizing the need to protect the health and safety of the public.

Effective Date: July 1, 1987, except for the provision establishing the AIDS task force which takes effect upon passage.

Special Act #87-112

AA ESTABLISHING AN ADVISORY BOARD TO THE SELECT COMMITTEE ON SUBSTANCE ABUSE PREVENTION

After the defeat of HB 7178, AAC Triplicate Prescription Forms, supporters attempted to amend SB 950 with language which would have in effect required the practitioner to use the triplicate prescription forms provided by the Department of Consumer Protection. In addition, the Department of Consumer Protection would have to establish a program to familiarize health care professionals with the legislative intent of this act and its relationship to pain management and the use of Schedule II substances.

This amendment was ruled non-germaine by the Acting Speaker of the House on June 3, 1987, the last day of the Legislative Session. Instead, an amendment which called for a study committee composed of the Legislature's Committee of Cognizance, representatives of the pharmaceutical manufacturers, physicians, drug stores and, department staff was passed.

The President of the State Medical Society was named to represent the medical community on this study.

Effective Date: July 1, 1987

Public Act #87-275

AN ACT CONCERNING INSURANCE COVERAGE FOR OUTPATIENT MENTAL ILLNESS COSTS, AND COSTS FOR PROSTHESIS

Public Act #87-275 increases from $1,000 to $2,000, the maximum yearly benefit for outpatient treatment of mental illness under a major medical insurance policy.

This bill also makes it clear that the minimum yearly benefit for prosthesis is $300 for each breast that is surgically removed because of a tumor.

Public Act #87-481

AAC INSURANCE FRAUD AND ABUSE

Public Act #87-481 reorganizes the insurance fraud statutes so that all health care false claims or fraudulent behavior is covered under "The Health Care False Claims Act." The new law prohibits kick-backs or bribes in connection with such coverage and benefits, prescribes penalties which are consistent with the general insurance fraud statutes, and defines what constitutes improper activity in obtaining health care insurance coverage.

Special Act #87-28

AAC A STUDY OF NONDISCRIMINATION IN INSURANCE BENEFITS IN MENTAL ILLNESS

Special Act #87-28 creates a task force to study whether the current insurance statutes discriminate against the mentally ill. It must also try to determine how removing any such discrimination would affect the well-being of the mentally ill and the health services available to them, how nondiscriminatory insurance treatment could be maintained, the effect on insurance premiums, and any other relevant issue.

The task force is composed of the Chairman and ranking members of the Insurance and Real Estate, Human Services, and Public Health Committees, or their designees. It must hold hearings, conduct meetings, and report its findings and any legislative recommmendations to the General Assembly by January 15, 1988.

Special Act #87-56

AAC A STUDY OF A VICTIMS' TRUST FUND

Special Act #87-56 establishes a task force to study the creation of a civil victims' trust fund and a commission to accept applications for compensation, hold hearings, and order compensation paid from the fund. Victims would be eligible for these awards if they successfully sue to recover money damages for personal injury or wrongful death and are unable to collect the full amount of the judgment because one or more defendants is insolvent, uninsured, or underinsured.

The task force is composed of 14 members: The Chairman and ranking members of the Judiciary and Insurance and Real Estate Committees and two representatives each from the insurance industry, victims groups, and the Connecticut Bar Association. The Senate Majority Leader and House Minority Leader each appoint one insurance representative. The Senate President Pro Tempore and Speaker of the House each appoint one victim representative. The Senate Minority Leader and House Majority Leader each appoint one Bar Association representative.

The bill requires that the task force report its findings and recommendations to the General Assembly by February 6, 1988.

Following is a list of legislative proposals affecting medicine that were not enacted into law:

SB 1098

AAC MEDICAL EQUIPMENT

SB 1098 would have required any acquisition of medical equipment to be subject to the certificate of need process.

The bill did not receive a public hearing and therefore died in the Public Health Committee.

SB 1116

AAC HOSPITAL-BASED PHYSICIANS

SB 1116 would have defined a "hospital-based physician" and required these physicians to submit to the Commission on Hospitals and Healthcare such data as the Commission deemed necessary to develop and implement a prospective payment system for hospital-based physicians.

Furthermore, the formula developed was to ensure that Medicare patients eligible for Part B would pay no more than the federally prescribed deductibles and co-insurance.

The Commission was to compute a fixed fee for hospital-based physicians by speciality for each type of illness and to allow only a percentage reimbursement of the hospital's specific fee and the peer group fee.

SB 1116 was heard at a public hearing and never was scheduled for a committee vote.

SB 3

AAC RENEWAL OF A LICENSE TO PRACTICE THE HEALING ARTS

SB 3 would have allowed a retired practitioner to maintain a Connecticut license on an inactive basis for a limited dollar amount.

The bill was defeated in the Finance, Revenue, and Bonding Committee.

SB 183

AAC SERVICE OF SUBPOENAS ON PHYSICIANS

SB 183 would have permitted the service of a subpoena upon the nurse, receptionist, or office manager of a physician as agent for the physician to facilitate service upon physicians.

The bill was killed in the Judiciary Committee.

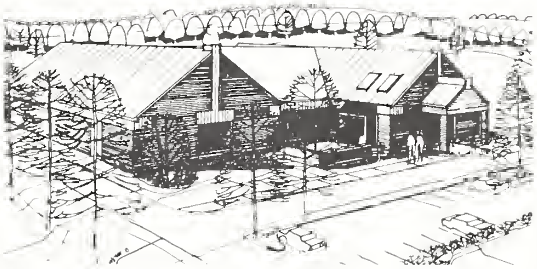
Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:
- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:
- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Medical) for Ophthalmology.
- CO_2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

The clinical challenge:

The Elderly Hypertensive

- *Reduced cardiac output and renal function*
- *Greater potential for side effects*

Geriatric Update: Reimbursement Controversies and Trends in Health Care Delivery to the Elderly

ANDREW D. WEINBERG, M.D.

It has been said that when a person reaches the age of 65, he or she will have the opportunity to meet a lot of new people. Unfortunately, most of these new acquaintances will be members of the medical profession. The corollary, that a vast amount of the money spent on health care in the United States is for the elderly, is also true, but much less of a joke. The problems of long-term care, home care, and the delivery of medical services to the elderly are, as yet, without any solutions. The problem of who shall pay for these services is also very complex, particularly when third-party payors, who have a poor reputation in this area, are involved. An ideal system would have to satisfy the needs of all of the following: the patients, the doctors, the hospitals, the nursing homes, the diagnostic laboratories, and the pharmacies. Clearly, there are no easy answers, but we must, at the very least, begin to analyze the problem in detail if we are eventually to find any solutions.

The establishment and maintenance of an ideal system of health care delivery to the elderly would cost billions of dollars more than we even spend today. Unfortunately, proposals which involve the spending of increasing sums of public money are very unpopular. Congressional spending is being cut in all fields and the prospect for increased expenditures in this area is politically doubtful at the present time. However, the American Association of Retired Persons (AARP) and the media have managed to destroy our illusions that health care for the elderly involves only a relatively small group of people. The proportion of the population which is over 65 years old is about 11% and will reach approximately 25% by the year 2030. For this growing population of the elderly one of the foremost problems will be that of long-term care, which will require a major financial commitment.

By 1981, there were 25 million people in the United States aged over 65.[1] To put this figure in perspective, consider that it is larger than the entire population of Canada! Furthermore, population studies indicate that the size of this aging population will continue to increase well into the next century.

Medicare, which has been the object of so much criticism, from physicians and patients alike, has, nonetheless, provided millions of dollars for the medical care of the aged who otherwise would have received no care at all. In spite of its shortcomings, the Medicare system has, over the past 20 years, provided a certain amount of care and ensured the financial stability of many elderly people, and its important contributions should not be overlooked.

One factor, which has been responsible for the financial difficulties in which Medicare finds itself, is the enormous increase in the costs of hospital care and of the myriad of sophisticated diagnostic tests which have been developed during the past decade. As a result of these escalating costs, some experts believe that the Medicare system is heading towards bankruptcy. However, it is not only the increase in costs which is responsible, but also a change in the ratio of contributors to the fund to recipients of care. For the past 40 years the ratio of workers who contribute to the Medicare trust fund to beneficiaries of the fund has been about 4 to 1. However, during the past decade the ratio has been declining and is approaching 2 to 1. Clearly, with more money being taken out than is being put in, there is no way that the money in the Medicare trust fund will last much beyond the turn of the century. While interpreting such ratios may be deceptive when drawing conclusions, Secretary of Health and Human Services, Dr. Otis Bowen, has also predicted that by the year 2010, not only will the trust fund be bankrupt, but it will be one trillion dollars in debt![2] This prediction is based on an assumption that the costs of health care will remain stationery, but, as we all know, they are bound to increase.

Medicare has been especially vulnerable to cuts in its budget over the past five years. It is true that many other sectors of the economy have suffered similar cuts in their budgets, in particular those areas concerned with education. Over the past five years, however, President Reagan has cut $40 billion from the Medicare budget, while the amount (or deductible) that the patient has to pay for hospital admissions has risen by 200%. As if these changes were not enough, President Reagan has officially proposed

---

ANDREW D. WEINBERG, M.D., Clinical Instructor in Medicine, Yale University School of Medicine.

Reprint requests to: 144 North Main St., Branford, CT 06405 (Dr. Weinberg).

This paper was presented at the Connecticut State Medical Society's Geriatric Symposium held March 4, 1987. The Symposium was held at the Quality Inn of Cromwell, Cromwell, CT.

that a further $70 billion be cut from the Medicare and Medicaid budgets together in the next five years. What are the implications of these drastic cuts, which represent 57%[1] of the present contribution by the federal government to these funds? In a word: disaster! Those members of Congress who have a working knowledge of the problems of health care delivery know that such cuts will destroy the viability of the Medicare system. In addition, rising out-of-pocket expenses of health care for the elderly will further endanger life savings and financial stability for those elderly with fixed-incomes. The AARP, together with other organizations, has joined a coalition of 23 lobbying groups which is trying to gain public and presidential recognition of the fact that the course of action proposed by the President is akin to lunacy.

While we must continue to be very concerned about the threats to the viability of the Medicare and Medicaid systems, it is important to recognize, at this point, that less than two cents of every dollar expended by Medicare is spent on nursing home care in the United States. Cuts in Medicare will hurt all of our aging populaton, not just those in long-term care.

Overall health care expenditures for the elderly, including nursing home placement, are concentrated in the 75-and-older population and will undoubtedly remain a major user of total health care dollars. In demographic terms, the largest subgroup in our population today is made up of those who are 85 or older, and this subgroup is growing larger all the time. It is probable that this subgroup will remain the largest for the next two decades.[3] Of the present population of people over 85, 23% reside in nursing homes.

Thus, over the next 20 years, the largest growth industry in this country will probably not be the defense industry, but will be the long-term care "industry." Unfortunately, at present, very few people fully appreciate this fact and its signficance. Although some efforts at planning for this increased growth have been made, we are certainly not yet ready to meet the demands which will be made on the system.

The current annual expenditure in the United States for long-term care is about $40 billion. A conservative estimate of the size of the budget in 15 years for long-term care is $80-$90 billion. Only 2% of the money currently spent on long-term care is provided by Medicare. Who is paying and who will pay for the other 98% of the costs is our topic for discussion today. The sum needed each year to cover such care is greater than the total amount spent on all federal health programs and will increase annually as the members of the "Baby Boom" generation continue to age.

Medicare and Medicaid are not identical, although they both serve to cover the costs of medical care in the United States. Medicare is the federal system of paying medical expenses incurred by those over the age of 65 and is administered at the federal level. A small monthly premium is charged to those who join; benefits cover 80% of reasonable expenses of hospitalization and medical care after certain deductible amounts are paid by the patient.

Medicaid is synonymous with Title XIX and the terms may be used interchangeably. In fact Title XIX is the term used for the federal portion of funding for Medicaid. Approximately 13%[1] of the funding of Medicaid programs comes from the federal government but the Title XIX programs are administered by the individual states and the regulations and rules of eligibility vary from state to state. One need not be 65 or older to qualify for Medicaid and eligibility is generally based on income. However, since the federal government provides some of the funding, the cutbacks by the government in these funds will clearly affect each state's ability to continue its Medicaid program.

State governments will not usually grant a Title XIX number to anyone who has significant funds or any convertible asset, such as a car, a house, land, stocks, bonds, etc. Each state considers eligibility in a different way, but in the state of Connecticut a two-year restrospective audit is conducted for each applicant to ensure that no funds or property were transferred during that time, from the applicant to, for example, a child or other relative. If any assets are found during this audit, the state has the power to subpoena all relevant documents and require that such funds or property will be returned prior to issuing a valid Title XIX number.

Obviously, without such a rule, which exists in some form in many other states as well, children could appropriate all their parents' assets as soon as the parents became demented or suffered some other serious illness that required institutionalization. Such a burden on the state budgets would cause them rapidly to run out of funds. There is, however, no evidence to suggest that the majority of adult children attempt to beat the system; they are usually, in fact, quite supportive and responsible.

The state government is becoming increasingly alarmed at the amounts of money from the Title XIX program which are being spent on long-term care. The electorate is also alarmed by the number of stories of couples depleting their entire life savings when one member has to be admitted to a long-term care facility. Obviously, nursing homes are expensive. The average cost is between $25,000 and $30,000 per year,[1] and very few people can afford to pay such a large sum of money for more than a few years at most. Some have taken the drastic step of divorcing an ailing spouse, in order to protect their joint property, a step which can be extremely traumatic for all involved. There is no answer to the tremendous cost of nursing home care, and the best advice that we can give anyone at present is to seek the services of an attorney—sooner rather than later.

There are six questions related to the funding of long-term care which we can consider at present and they are summarized below:

1. Should Medicare finance long-term care?

2. Should long-term care be funded only on the basis of need, or should there be "blanket" coverage available for everyone?

3. Should children be forced to subsidize their parent's care?

4. Should people be able to "prefund" their own benefits?

5. Should tax credits be allowed for programs which direct funds into a health care savings account for later use?

6. Should the government discontinue its involvement in the financing of health care?

Should Medicare finance long-term or home care? At present, only 2% of long-term care is paid for by Medicare. Coverage for those admitted to nursing homes is limited to 100 days after a qualifying three-day stay in a hospital. However, coverage for the 100 days is not automatic. Certain strict criteria must be fulfilled for coverage to begin, and reassessments are done periodically to ensure that such criteria continue to be met. For example, if a patient has had a stroke the potential must exist that the patient will become ambulatory or regain function in the affected part. Once the potential is lost, the coverage by Medicare ceases and the individual or family is responsible for all costs.

Should long-term care be funded solely on the basis of need? Does the state have a responsibility to protect all of its citizens from the catastrophic financial outcome of extended nursing home care? There is no general agreement on these controversial issues at present.

Some states have considered the idea that children should be forced to subsidize the long-term care of their parents. Others feel that people should be able to prefund their own long-term care of their parents. Others feel that people should be able to prefund their own long-term care via special tax-free savings accounts, similar to the I.R.A., the tax-deferred Individual Retirement Account.

These controversial proposals, of course, only apply to the wealthier members of our society, and represent yet another example of "to him who has, more shall be given." These proposals do nothing to provide for those who have managed to live just within their means or for those who are truly destitute.

Since the provision of medical benefits has frequently proved inadequate or ineffective, and often has been dishonestly exploited, many people are of the opinion that the government should remove itself totally from this area and leave it to the private sector. This judgement is somewhat harsh but needs to be included in any discussion.

For the sake of completeness, at this point, we should include the contributions of the American Medical Association (AMA) to these discussions. Twenty years ago, the AMA went on record as being strongly opposed to the establishment of Medicare in the form proposed by Congress. In view of the fact that Medicare has subsequently helped millions of people, it is not clear that this opposition was justified. However, in 1986, the Board of Trustees of the AMA made public a proposal for a completely new health care system to replace Medicare. Under this proposed new system, the out-of-pocket expenses for total medical care would be limited for every American to $2000 per person or $3000 per couple. Every year, all elderly subscribers to this system would receive a voucher through the mail which would enable them to buy into any of the available insurance packages in their state offering this medical coverage. Such packages would include total and comprehensive coverage: a biennial physical exam, medications, hospitalization, long-term care, and home care. The cost to each individual would increase with increasing income, and those in the lowest 5% income bracket would be exempt from any payment at all. People would also be allowed to contribute to tax-free IRAs to fund additional medical expenses not covered under this program. The suggested minimum age for eligibility would be raised from Medicare's current 65 to 67 over a period of eight years. [2] Other adjustments in the cost of the program would be added to the basic payment required to receive the annual voucher. The overall philosophy of the AMA's proposal is that American physicians are best suited to reorganize the Medicare system—a point not fully accepted by many experts in this field.

The recent legislative proposal by President Reagan in January of 1987 made headlines with a major announcement of a new health care plan which he said, and I quote, "would give elderly Americans the last full measure of security." Rather than discuss what his proposal would cover, let us put the whole proposal in a different perspective and discuss what it would not cover. Elderly Americans would be granted a full measure of financial security provided they do not suffer from Alzheimer's disease or Parkinson's disease, provided they do not need long-term custodial care in a nursing home, provided they do not use any prescription drugs, and provided they do not need dental care or hearing aids.

Obviously, there a few important drains on a person's resources which are not covered by President Reagan's proposal. The main advantage provided by the proposed program would be that, in case of hospitalization for an acute emergency, the total expenses incurred by an individual would not exceed $2000, unless, of course, these include fees from non-participating physicians. The irony of the President's proposal is that it would protect a very small percentage of the elderly population from the costs of catastrophic illness, while simultaneously reducing by a significant percentage the amount of money available for everyone else's long-term care from the already major budget reductions proposed by Medicare and Medicaid.

As a result, the great majority of Americans over 65 would suffer greatly. We should be grateful that more than a handful of legislators have pointed out that the President is misleading the public with his grandiose promises of security. In essence, the proposal deals with none of the issues with which this discussion is concerned and is clearly an inadequate recognition of the financial realities of expanding health care benefits to the elderly.

We should take a moment to review some of the statistics which apply to long-term care in the United States:

AYR INSURANCE AGENCY

Sponsored by

The Connecticut State Medical Society

FEATURING:
Term Life Insurance
$300,000 Maximum
Low Non-Smoker Rates
No Physical Required

Also FEATURING:
Disability Income Insurance
Hospital, Surgical and Major Medical Insurance
Office Overhead Insurance

“Growing Bigger by Serving Better”

Alison Ayr
J. Lauren Ayr
David Gould
William Harrington

105 Sanford Street, Hamden, CT 06514
Telephone 288-4302

- The average cost, at present, of a bed in a nursing home is between $25,000 and $30,000, and the approximate total annual costs is $40 billion.[1,4]
- 25 million Americans are 65 years old or older and comprise 11% of the population of the United States.[5]
- 1.3 million Americans occupy beds in nursing homes, a figure which is projected to reach 7.5 million by 1990-1995.[6]
- The fastest growing segment of the population is the segment which is 85 or older, and which currently consists of 2.7 million individuals.[1]
- 23% of the population which is 85 or older resides in nursing homes.
- At present, 35,000 Amercans are over the age of 100, a figure which will reach 100,000 by the year 2000.
- The estimated cost of nursing home care by 1995 is twice what it is at present, namely $80 billion.

These statistics clearly show that both the AMA's and President Reagan's proposals do not fully deal with the economic impact of a rapidly rising nursing home population. Further planning is needed to provide for funding this ever-increasing area of health care expenditures.

It is hard to appreciate just what a population of 1.3 million elderly residents represents. Consider, then, that there are more people residing in nursing homes today than occupy beds in every single university, city, and community hospital in the United States combined! Add to this shocking fact that the nursing home population is projected to reach 7.5 million over the next ten years and you can see that we are totally unprepared for this explosion in the requirement for and cost of care for the incapacitated elderly.

It is a very common misconception, among both physicians and the elderly, that Medicare pays for long-term care.[1] In a recent survey, conducted by the AARP, 79% of respondents agreed with the statement that Medicare provides full coverage for long-term care. Most doctors are quite sure that Medicare pays for nursing home beds. As was mentioned earlier, less than 2% of the cost of all nursing home care is paid by Medicare. There is also concern about Diagnosis Related Groups (DRGs), the prospective payment system which assigns a specific diagnosis at the time of hospital admission and "locks in" a fixed amount which will be paid to the hospital for that patient's care.

Many people are concerned that DRGs may encourage hospitals to discharge patients more quickly to beds in long-term care facilities, thereby taxing the staffing requirements of these nursing homes and potentially reducing the optimum amount of nursing care these patients receive. This belief that hospitals are discharging patients "sicker and quicker" is raising concern in the long-term care industry that overall quality of care will suffer in nursing homes, as the states are not yet willing to allow increases in staff numbers. And if nurses in long-term care facilities, where the ratio of nurses to residents is already much lower than a general hospital, must care for sicker patients, they will have less time to care for the chronic custodial patients, whose care will suffer in consequence. Further research is clearly needed to answer the question whether DRG's have caused a significant impact on nursing home admissions and subsequent quality of care.

The rate of construction if new nursing homes is increasing at about 2% per year, but it has been estimated that the minimum rate of increase which is needed to keep up with the projected demand is 3%. Thus, we are falling behind about 10% per decade. Overall then, unless states, including Connecticut, lift their moratoria on building and relax their certificate of needed formulae, and federal control of capital financing is eased, there is no way the increased demand for long-term care beds will be met.

It is, at present, unclear how federal and state agencies plan to cope with the 7.5 million potential residents of nursing homes in the next 10-15 years. In the absence of any plan, the onus may fall on the hospitals. If there are no nursing home beds available, the incapacitated elderly will have to remain in hospitals or be discharged to the care of family members. No hospital is going to put an elderly person into the street, but the economic consequences of hospitalizing patients for several months beyond the reasonable date of discharge will be devastating. Already some hospitals have been purchasing nursing homes or making restrictive agreements with long-term care facilities to guarantee a number of beds for their exclusive use. Hospitals may also be able to avoid this problem somewhat by being "selective" in whom they admit (e.g. avoid admitting the poor risk elderly).

An example of such an unfortunate state of affairs can be seen in the United Kingdom. In England, the hospital serves as the long-term care facility until an opening in a nursing home arises. To fill this need for long-term care, many small, often inadequately regulated nursing homes have been set up. There are, of course, regulations to govern the running of such facilities, but the government budget does not allow for an adequate number of inspectors and sometimes flagrant violations occur.

To summarize what we have discussed above, there are four major problems faced by long-term care facilities today. First and foremost, the number of long-term care beds will continue to fail to meet the needs of the expanding elderly population.

Second, with funds from the federal government being restricted and cut back, and with 48% of long-term care presently being paid by Medicaid, the quality of such care is available is bound to decline. The states cannot manufacture money, but there is no way to solve the problems of long-term care without the commitment of additional funds.

Third, Medicaid payments, even now, are barely adequate to cover nursing home care expenses. No nursing home in the state of Connecticut could survive exclusively with 100% of its residents reimbursed under Title XIX and provide quality care at the same time. The lack of sufficient funds will also prevent the introduction of innovations in nursing home care, such as Alzheimer care units and the availability of intravenous therapy.[7] These programs, and others like them, offer possible mechanisms for improving the overall medical care in nursing homes. Additionally, the advent of geriatrics as a medical specialty may aid in providing better medical direction and treatment for this population.

Fourth, whichever way one looks at it, there is no way that the federal government is going to foot the $80 billion bill for nursing home care in 1995. Private tax-incentive programs and other innovative systems may offer a viable alternative to helping fund the bill for extended care. The population of the elderly is increasing in size, and they will not just disappear. Most of the residents of nursing homes require a substantial level of care and very few families are equipped, able, or willing to provide this kind of care at home 24 hours a day, every day of the year. We will discuss home care later.

As it stands today, does Title XIX actually protect the patient's interests? Certainly, it does not cover dental care or extensive eye care. If individuals over the age of 80 in Connecticut, for example, lose their dentures, another set will not be paid for, no matter what their physicians order! If the dentures are broken, they can be fixed, but if they are lost or stolen, the unfortunate owner will have to live out his days without teeth.

Only prescription medications are covered by Medicaid, so that useful "over-the-counter" medications are excluded. Some states, such as California, have very restrictive Title XIX programs, which may refuse to pay for some new and expensive medication and insist that an older and cheaper drug be prescribed by the physician. Such restrictions affect the quality of care and, thus, the quality of life of the patient. Changes in these regulations have to be made at the legislative level, and it is there that pressure for change must be applied. In any case, many physicians and dentists will not take Medicaid patients on a regular basis. Dentists are not covered by Medicare at all.

Since the federal government cannot pay the bills for the health care of the elderly, we must consider what is being done in the private sector. Ohio, for example, has had an insurance program since 1984 which covers long-term care. The program costs about $2,200 per year, has a one-year waiting period, and provides maximum benefits for two years, including custodial care. Now, Medicare does not cover custodial care, which it defines as care for the purpose of meeting personal needs, and which can be provided by persons without professional training or skills.[8] Not only does Medicare not cover the costs of nursing home care, private insurance policies paid less than 1% of the cost of such care in 1980.[9]

Aetna Life and Casualty Insurance recently introduced a new insurance policy in Connecticut. This new policy does not cover care for any pre-existing condition, or for any condition or diagnosis (not listed specifically on the application) found to exist within 100 days of the writing of the policy. The first 24 hours of care must be skilled care if the policy is to be activated.

There is an exclusion period of 100 days, and the maximum period of coverage runs from three to four years. The benefits range from $60 to $100 per day, and the policy is renewable and non-transferable. The premium for someone between the ages of 55 and 64 is $420 per year. For persons over 70, the premium rises to $1,330 per year. The rates increase commensurately with the benefits, but the maximum benefit is $182,000 over five years.[10] This sum represents the most that will ever be paid to a single holder of a policy, and the maximum length of any single stay in a nursing home is four years.

The policies just described are not available to anyone who has a severe medical condition, for example Alzheimer's disease or serious diabetes. Moreover, the policy is only available to people over 55. The reason for not selling such policies to younger people is the increasing prevalence of Acquired Immune Deficiency Syndrome (AIDS). Many people with AIDS may potentially receive terminal care in nursing homes and the insurers want to avoid responsibility for this segment of the population. The requirement, that the payer of the premium undergo skilled care for the first 24 hours before coverage with either plan can be activated, prevents people who have been cared for at home for years, and who develop Alzheimer's disease, from qualifying for insurance payments upon admission to a nursing home. In such cases, the policy is void and, of course, none of the premiums are returned.

The policies offered by Aetna are renewable and cannot be cancelled, which are important points, but the real problem is that Alzheimer's disease can last for as long as ten years. The maximum benefits are payable for only two to four years, so that instead of eliminating the possibility of financial disaster, the insurance plan merely postpones it. Who is going to pay for the six years that are not covered?

The questions raised concerning long-term insurance are not easily answered. How can we guard against default by the insurer? How can we decide whether to market policies to children or their parents? What shall we do if the total "elderly market" does not support a sound benefit structure? How can insurance policies be structured to reinforce rather than displace family support and care? How can we provide for the ever-increasing rates of nursing home care with fixed benefits? There are serious doubts whether insurers will be able to market and maintain long-term care policies in significant numbers or ever provide for the payment of such care for victims of Alzheimer's disease.

The discussion of insurance for long-term care is very much in vogue at present. Even though people are living longer, there is increasing morbidity due, in particular, to strokes and Alzheimer's disease. More and more custodial care in the home and in nursing homes is required. It is not as if people are living to be 100 and then dying in their sleep. People are living into their eighties and then in ever increasing number spending another decade in a nursing home.

Finally, we should briefly consider the roles of Health Maintenance Organizations (HMO) and in-home care. HMOs do not usually provide long-term care. They provide everything else: physical exams, surgery, and medications, but they will not pay for long-term care. In fact, many HMOs are finding their elderly patients to be very expensive, since, for legitimate reasons, they do have more health-related problems. HMOs cannot afford to bankrupt themselves by including coverage for long-term care. There are a few experimental examples of social HMOs designed to provide in-home care and avoid nursing home placement for their clients but their numbers have been too small at present to make much of an impact on nursing home admissions.

In-home care does not solve economic problems either. A minimally trained aide receives in the range of $10 or more per hour, which mounts up quickly over the days and weeks. Nurses cost far more. An elderly person could be put up in a four-star hotel for about half the cost of nursing care! Overall, the diversity of dependent elderly's needs may be that services are best provided in a nursing home for some and in their own homes for others. Connecticut has recently approved a pre-institutional screening program to prevent the admission of elderly persons to a nursing home when supportive home care services would suffice.

The following is a list of what is needed to establish a good system of care for the elderly population.

- Affordable long-term insurance with adequate benefits.
- Automatic increases in benefits to cover the cost of care.
- An increase in the number of primary care physicians or geriatricians who provide physician care in nursing homes.
- An increase in the number of community-sponsored programs (including those which provide custodial care) which are adequately covered by federal, state, or private insurance programs.
- Increased coverage for eye and dental problems.
- Increased subsidies for prescription medications.
- The development of insurance policies exclusively for custodial care.

In addition to the programs mentioned in this list, what is needed is a consensus of opinion in this country about how we want to approach this potentially devastating problem. Currently, there is no consensus, only a multitude of agencies with over-lapping programs which oversee a multi-billion dollar industry, without any national goals, policies, or integrated effort. I have outlined the problems, but we need a national effort to examine the possible solutions and means for funding them.

We must eliminate the equivalence between longevity and financial ruin. We must develop policies to deal with health care for all members of the aging population and to provide custodial care for the increasing numbers of incapacitated elderly. They gave their working lives to this country and they deserve to be provided for in their old age. We have an opportunity to provide for them as well as the opportunity to establish systems which will come to our assistance when old age finds us.

REFERENCES

1. Long Term Care of the Elderly. Health and Public Policy Committee, American College of Physicians. Annals Int Med 1984, 100:760-763.
2. A Proposal for Financing Health Care of the Elderly. Report of the AMA Board of Trustees, June 1986.
3. White House Conference on Aging. Final Report. Vol 1, Washington DC, 1982.
4. Kane RA, Kane RL. The feasibility of universal long term care benefits. NEJM 1985, 312:1357-1364.
5. Health-United States. Hyattsville Maryland: Department of Health and Human Services 1981, p 15, DHHS publication no 82-1232.
6. Working Papers on Long Term Care. Washington DC: Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services 1981, pp 16-27, DHHS publication no 1981-341-155/144.
7. Weinberg AD, Weinberg LL. Guidelines and perspectives on the utilization of intravenous therapy in skilled nursing facilities. Conn Med 1984, 48:535-539.
8. Your Medicare Handbook. Hyattsville Maryland: Health Care Financing Aministration, Department of Health and Human Services 1984, HCFA publication no 1050.
9. Somers AR. Long-term care for the elderly and disabled: a new health priority. NEJM 1982, 307:221-226.
10. "Long Term Care Plan," Aetna Life Insurance and Annuity Co, Hartford CT, 1987.

CNA has a longstanding commitment to medical malpractice protection.

The CNA Insurance Companies have been committed to providing quality malpractice insurance for over 15 years. And we've kept this commitment even through the years of malpractice crises.

One reason we're able to honor that longstanding commitment is our financial strength. CNA has grown to the 14th largest insurance organization. And, we're now one of the largest malpractice insurers. By protecting thousands of medical professionals, we have solid expertise in underwriting, claims service and legal defense.

We've made a commitment to offer comprehensive, quality medical malpractice protection to meet the needs of physicians. For more information, contact the CNA program administrator today.

A.A.W. Physicians Plan, Inc.
225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The CNA Physicians Protection Program is underwritten by Continental Casualty Company, one of the CNA Insurance Companies.

CNA
For All the Commitments You Make®

M.D. Health Plan: The Different HMO

A Letter to CSMS Members

DOUGLAS A. HAYWARD

During the short time that has passed since my arrival as President and CEO of M.D. Health Plan, I have had an opportunity to assess M.D. Health Plan's structure, staff, and Board of Directors and am most impressed by what I have seen. I am equally impressed by the physicians' understanding of events underlying the change in delivery of health services over the past ten years transforming private (predominantly solo) practice of medicine into a highly organized and mechanized system of health care. This change is not necessarily bad, providing the motivation and purpose behind the change continues to improve the health and well-being of the citizens of Connecticut. Forward-thinking physicians in our state believe, however, this intention has been somehow lost among profit-oriented insurance companies interested in managed care programs and national HMOs. Furthermore, this change, if allowed to continue, will erode the basic concept of private practice medicine and redefine the profession's traditional standards of patient care.

M.D. Health Plan is the culmination of efforts undertaken by those physicians who believe managed care, as currently represented in our state, to be fundamentally misguided and who recognize that correcting the situation will require sophisticated and elaborate solutions.

I have observed several characteristics of M.D. Health Plan that are different from other plans in this country. Having over eight years of exposure to several HMO models (including those operating in Connecticut), I feel qualified to comment on elements of M.D. Health Plan's innovative approach to managed health care that I believe set it apart from the others. My observations are as follows:

Physician Participation

Even though physicians have participated in HMOs as practitioners of care and serve as directors of boards, their involvement was limited. They have not had the ability to define health benefit coverage or participate in plan management. Physicians affiliated with M.D. Health Plan understand the impact this lack of participation has caused when critical decisions are left to HMO administrators who have little knowledge of how their decisions affect health status of patients.

The difference between M.D. Health Plan and others is simple. M.D. Health Plan emphasizes the patient/physician relationship where quality care is the main objective. This single purpose underlies the Plan's organizational structure (and marketing philosophy) to the degree that Connecticut employers desire an HMO oriented to improving health status for their employees rather than improving the economic status of administrators or shareholders.

Local Orientation

M.D. Health Plan was established by and for the benefit of Connecticut physicians and their patients. Unlike many national HMO chains and insurance companies desirous of spreading their empire over most of this country, M.D. Health Plan chooses to invest its energy and resources here in Connecticut. Our purpose is not to guarantee corporate shareholders a predetermined dividend level, as is the case of many publicly traded, national HMOs and insurance companies, but to serve the needs of our members and you, their physicians.

When corporate objectives focus on the "bottom line," management will institute policies to minimize expense, including fee reduction, and/or to redirect resources to markets that are more profitable. Neither approach is of benefit to physicians or patients. Physicians will soon recognize that these plans often reduce access to market (your patients) rather than enhance market access. M.D. Health Plan was formed to guarantee access by placing Connecticut physicians on a level playing field with the likes of Maxicare, U.S. Healthcare, Partners (VHA-Aetna HMO), CIGNA, Kaiser, and others who may come to our state.

Employer's Needs

Probably the single greatest change occurring in the HMO industry is occurring among employers—the purchasers of health care. The sudden proliferation of HMOs, PPOs, EPOs has caused employers to become selective about the providers of employee health care benefits. Existing and newly formed HMOs are being judged against selection criteria established by employers. Regional HMOs offering limited physician access, limited geographical coverage, inflexible premiums, and the like are finding their contracts terminated by companies interested in easing contract administration and the costs associated with it. Physicians not participating in the remaining health plans lose patients as a result of the

---

DOUGLAS A. HAYWARD, M.H.S.A., is President and Chief Executive Officer of M.D. Health Plan, Inc., Connecticut's first statewide prepaid health plan.

employers' decisions to drop HMOs. This occurred several times during the time I worked for a health plan in northern California.

M.D. Health Plan, as Connecticut's only statewide HMO, will have an advantage over the other plans that are incapable of meeting employers' geographic needs or patient accessibility criteria. To me, this is the single most impressive characteristic of M.D. Health Plan and will resolve, in the employer's mind, any concerns regarding ease of contracting.

In addition, employers are beginning to question whether the HMO industry is really concerned about health care cost containment. They have been told that through employment of utilization control mechanisms medical cost would decrease thereby decreasing the employer's premium cost. However, they are not convinced this has happened and, in fact, believe some HMOs' premiums are as high or higher than indemnity premiums where no such control exists. In addition, they believe that when savings have occurred, it has been diverted away from employers and into HMO profits. Statistics indicate marginal profits on traditional indemnity coverage; in the 1960's and 1970's they ranged from 1% to 3%, whereas until recently publicly held HMO margins were as high as 6% to 8%. Some employers are now demanding that health plan and insurance companies alike provide utilization and cost data specific to their employees to ensure only a reasonable amount of surplus will go to profit the health plan and insurance company.

I am not implying that the concept of managed care is flawed but feel that M.D. Health Plan's interest in providing high quality health care at a reasonable cost is more closely aligned with the interest of Connecticut employers who are looking for greater value and service for their health care dollar. Consequently, we are in a far better position to capitalize on changing attitudes of employers than other plans whose objectives may not be as synergistic.

A personal objective of mine is to create a forum through which Connecticut employers and M.D. Health Plan physicians may exchange ideas and concerns about the cost and delivery of health services to their employees and your patients.

A Profession-Driven Solution

In May I had an opportunity to address the House of Delegates of the Connecticut State Medical Society and personally witnessed your resounding support for M.D. Health Plan. I must confess, however, I am surprised by the number of CSMS members who have not yet become participating physicians in the Plan. The concept of an individual physician-owned-and-controlled health plan providing enrollees open-access to physicians throughout Connecticut regardless of residence is an extremely powerful mechanism for preserving the sanctity of the physician-patient relationship. By creating M.D. Health Plan, the House of Delegates said to state medical societies throughout this country that Connecticut physicians will oppose the further economic and political imbalance between insurers and providers of care and the impact it has on the quality of medicine practiced in our state; yet fewer than one-third of CSMS members have invested in their own creation since the February stock registration.

The real challenge to Connecticut physicians is how to deal effectively with cost containment demands from employers and preserve the private practice of medicine. M.D. Health Plan is a "profession-driven" solution. It is *not* an insurance company or service corporation or entrepreneurially imposed design that reduces physician fees to preserve profits for a third party intermediary.

I look forward to working together with CSMS physicians over the years.

The New Woman Physician: Her Growing Numbers Are Not Yet Represented in Organized Medicine

AMA ADVISORY PANEL ON WOMEN PHYSICIANS

Today's woman physician is about age 35, involved with patient care, and is based in an office and not at a hospital. Her professional type can be found in great numbers in New York, California, and Illinois.

When she chooses a specialty, she no longer finds herself limited to treating women and children. She has begun to enter formerly male-dominated fields such as surgery in ever-increasing numbers. However, her strength is still not proportionately represented in the professional forum where she can do the most for her future, and the future of other women who wish to become physicians: organized medicine.

What do the numbers actually show and what do they portend for medical organizations?

Data tell the story

There are more doctors in America now than in the 50s. Though the numbers of total physicians per 100,000 population varied little between 1950 and 1960, there were over 60% more physicians per 100,000 total population in 1985 than in 1960.

Women in medicine have kept pace with this trend. Between 1970 and 1985, while the total number of practicing physicians grew by 66%, the number of women physicians increased by more than three times that amount, to over 80,000. Women were 12% of the physician work force in 1980; by year-end 1985, they accounted for 15% of the total physician population.

Women physicians, as a group, are young: by the end of 1985, 42% were under 35. Only 7% were 65 or older. In fact, nearly one-third of office-based women were under 35 compared to 14% of office-based male physicians in this same age group.

Practice patterns change

What specialties attract women physicians? Though the rankings have changed since the late 60s, seven of the specialties having the most women across all age categories have remained the same: pediatrics (it had the highest count of women in 1967: 3,519), general practice, psychiatry, internal medicine (it had the most women physicians in the period 1980-1985—going from 8,130 to 14,716), anesthesiology, obstetrics/gynecology, and pathology. Although there was a 63% increase in the numbers of women in the hospital-based specialities between 1967 and 1985 (anesthesiology, pathology, and radiology), nearly four in five women physicians were in patient care, the majority of those office based.

In terms of age and specialty, growth has been interesting. There are more women now in internal medicine, general surgery, and family practice *under age 35* than women that age in those specialties in the late 50s and early 60s. Among surgeons, 70% of the women are under age 35 compared to 3% aged 55 to 64, and 1% who are 65 or older. As a comparison, men are more evenly distributed than women by age and specialty, except for general practice. There are actually more male physicians 55 and older in that specialty (over 67%) than those under age 35 (only 3%). Eight years ago, more than a third of the specialties had no women in training; in 1985, female residents could be found in all but vascular surgery.

Membership is still low

Unfortunately for organized medicine and for women, they still are not as actively involved as men. Only 28% of active women physicians are members compared to 45% of male physicians, though this figure represents an increase over previous years.

As of the 1985-1986 school year, 21,624 women were enrolled in medical school, or about one third of all medical students. It is interesting to note that 36% of those women students are AMA members compared to 40% of the male medical students.

Such figures provide a strong base for more participation by women in organized medicine.

The AMA established the Women in Medicine Project in 1984 to promote such involvement. The Project coordinates AMA initiatives addressing women physicians and medical students, including membership development, leadership training and joint activities with special sections of the AMA. It also serves as a resource and clearinghouse for information on women in medicine.

The Project is guided by a seven-member physician and medical student Advisory Panel. They are working to ensure that women physicians and medical students are "fully mainstreamed" into organized medicine. Fully mainstreamed means when the proportion of women joining the AMA matches the proportion of men who become AMA members, and when the number of women in leadership positions is proportional to their numbers in the AMA.

AMA Women in Medicine Project promotes involvement

To do this, the Project has embarked on several membership initiatives, including a nationwide phonathon to invite women physicians to join the AMA. A short videotape of the event has been produced. It provides insights about the recruitment process and is available to medical societies. The Project has also developed and tested a model survey on the attitudes of women physicians, both members and non-members, toward their state or county medical society. This instrument enables societies to evaluate how effective their services are as perceived by women physicians in their communities.

The AMA Women Leaders Databank, maintained by the Project, now has more than 800 names of women nationwide who are interested in participating in organized medicine activities. The Databank was used to recommend candidates for AMA medical education committees and American specialty boards. Medical societies can use the Databank to great advantage to tap more women for leadership positions, creating more visibility for them and encouraging them to be role models for other women not actively involved in their organizations.

The AMA Women in Medicine Project has also commissioned several publications and resource documents. The first of these is the often requested "Maternity Leave for Residents," a comprehensive study of maternity leave policies that includes recommendations and guidelines. Also popular is "In the Marketplace" that covers the practice characteristics, work patterns and incomes of women physicians. Plans call for the publication of a new edition that will include revised data.

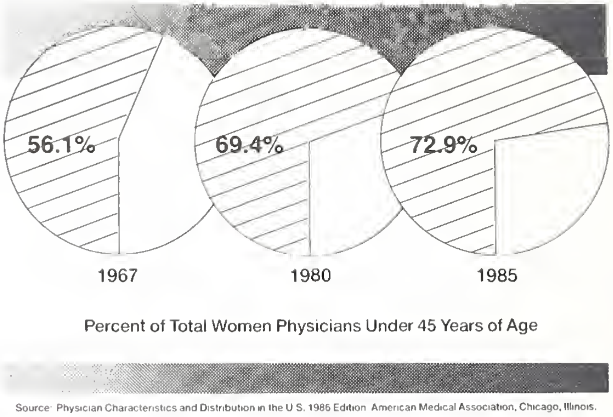


Figure 1

Source: Physician Characteristics and Distribution in the U.S. 1986 Edition. American Medical Association, Chicago, Illinois.

"The Residency Interview: A Guide for Medical Students," published in the fall of 1986, addresses the concerns of all fourth-year medical students, especially women, involved in the residency training program interviewing process. All fourth-year female medical student AMA members were sent a copy for their review and comment. Several hundred have respoonded. The "Guide" is currently being market tested and is also a membership incentive for all third- and fourth-year medical students.

The Project is still young, like the majority of women physicians, and needs the active support of state, county, and specialty societies around the country to enhance the involvement of women at the local and national level. The ranks of women in medicine are growing. Organized medicine has much to gain from mainstreaming women members. It also has a lot to lose if their opinions are not represented in local and national deliberations on the future of medical training and practice in this country.

All statistics have been taken from *Physician Characteristics and Distribution in the U.S.*, 1986 edition, Department of Data Release Services, American Medical Association. Percentages may not add up to 100 percent due to rounding.

View from the Hill

JAMES E. BRYAN

Recently, *The Washington Post*'s weekly "Health" supplement featured a column on aging, in which two physicians offered conflicting responses to the question: "Would you put your mother in a nursing home?"

Edward A. Moses, M.D., a family physician in Coral Springs, Fla., answered tentatively in the affirmative. He declared he "wouldn't hesitate to turn to a good nursing home [of which he assured us there are some]—if it meets my criteria." Uppermost among Dr. Moses' criteria is the assurance of "opportunity for stimulation," a lack of which Dr. Moses identified as "the fundamental deprivation older people experience so acutely."

Apparently, Dr. Moses does not expect the average nursing-home resident to find life in the institution a truly stimulating experience, but he suggests that residence in one of the better homes may be marginally preferable to being the lone occupant of a room in the home of a family member. Personality conflicts and tensions are all too common in households where elderly people live with one or two generations of their own progeny. Hence, Dr. Moses concludes that "a carefully chosen nursing home is the solution I would recommend to families making a 'quality-of-life' decision."

Nevertheless, he warns that "if the day-to-day routine involves little more than custodial care," then "gourmet meals, fancy locations, frills and lake-front views [all features of high-priced, exclusive nursing homes] will not ward off despair." Dr. Moses suggests evaluating the staff for people trained in therapeutic activities and group dynamics, and warns of "time tables, staff structures too regimented to cater to individual needs, and those [attendants] who resort to drugs to keep things easy."

These remarks pinpoint a criticism often expressed against U.S. nursing homes: whatever the quality of their basic custodial and nursing services, the attractions, activities and satisfactions they offer as a "home," as *the home* of their resident guests, are more often a travesty than a mutually satisfying experience.

The negative case in this far-too-sketchy debate was offered by Dr. Otto von Mering, director of the Center for Gerontological Studies at the University of Florida in Gainesville. Declaring flatly that "nursing homes are end-stage facilities," in which he would place his mother "only as a last resort," Dr. von Mering urges investigation of "opportunities in intermediate life care."

While admitting that public information on alternative programs for the "growing number of people who are living longer" is "sparse," Dr. von Mering asserts that "catastrophic and pathologic aspects of aging are exaggerated," particularly by the media, which he accuses of 'priming the anxieties of younger people about the threat of Alzheimer's, stroke and heart disease."

Both these physicians practice in a state which—as I can bear personal witness—is far ahead of most other areas in imaginative clinical and sociologic investigation of gerontologic problems, and in developing alternatives to the nursing home.

Indeed, Dr. von Mering predicts that "when medicine catches up with forward-looking approaches, nursing homes will become a smaller universe," yielding to many as yet unprobed concepts and unformulated programs for "continuum-of-care retirement communities, providing skilled intermediate care on 24-hour call." He emphasizes that longe-range comprehensive programs and support networks "for and by our elders are far more crucial than focusing on crisis care."

Dr. von Mering concludes with the provocative thought that in future planning for care of the aged, we should take into account the potential roles the elderly can play in making life more enjoyable and rewarding for their contemporaries and for themselves. "Today," Dr. von Mering points out, "people in their 80s are cared for by 60 year olds. Soon octogenarians will be fit enough to look after those over 90. We can't be equipped for longevity until we've dispelled the myth that aging is all downhill."

One year ago, this column was devoted to a commentary on a 400-page report, "Improving the Quality of Care in Nursing Homes," issued in April 1986 by the Institute of Medicine (IOM) of the National Academy of Sciences. The report followed a three-year study of nursing homes in the United States by the IOM, under contract with the U.S. Department of Health and Human Services.

There are approximately 1.8 million residents in some 14,000 certified facilities, about 11,000 of which are owned and/or operated by individuals or corporations as profit-

---

JAMES E. BRYAN, Washington Correspondent, *American Family Physician*.

Reprinted from *American Family Physician*. Copyright 1987 by American Academy of Family Physicians.

making enterprises. That the "industry" can be extremely profitable is illustrated by the experience of Manor Care, Inc., the second-largest corporate nursing-home chain in the U.S., with 139 facilities.

As reported recently in the business pages of *The Washington Post,* Manor Care has "followed a familiar formula: acquire nursing homes in affluent communities; refurbish the facilities; fill them up with elderly people who can afford the stiff prices, and watch the profits explode." The corporation's earnings growth approached 25 percent annually in the early 1980s. Manor Care's rate of earnings growth has recently tapered off, coincident with the costs of adapting 35 "Four Seasons" nursing homes it acquired in 1984. Nonetheless, Manor Care reported a profit of $30 million in the first nine months of its 1987 fiscal year ending February 28.

In 1935, the federal "Old Age Assistance Act" effectively eliminated the "poor house" or "almshouse" as the last resort of destitute elderly. The act stimulated the growth of the "nursing home industry," financed by a mixture of federal-state subsidies and private investments.

From 1935 until the late '60s, nursing homes were almost totally unregulated. According to the IOM, the "quality of care was appalling." Looking to the future, the IOM found that "historical experience hardly supports an optimistic judgment about the effects of allowing market forces to exert the primary influence over nursing home behavior." The IOM found that in "too many" homes, residents were receiving "inadequate—sometimes shockingly deficient care. . .likely to hasten the deterioration of their. . .health." Regulation, it was found, functions poorly and unevenly, allowing "too many marginal and substandard homes to continue in operation."

We return to this topic a year later for several reasons: (1) personal observation in Washington and reports from other areas affirm that local regulation is still haphazard and ineffective; (2) recent proposals for "catastrophic" medical care coverage have conspicuously ignored the super-catastrophic misfortune that is visited on a family of less than substantial resources when an elderly dependent must be placed in a nursing home, and (3) it seems desirable to remind physicians who deliver primary care that the IOM study found that "although physicians' roles in nursing homes are much more limited than they are in hospitals, there is substantial concern that in many nursing homes physicians perform in only a perfunctory or *pro forma* manner."

Nevertheless, the IOM reported evidence of "a growing interest in geriatric medicine among physicians and medical schools," which it suggested may result in "better motivated physicians with some formal training in geriatric medicine, providing better medical care to nursing-home residents." The question arises: "Why should physicians' roles in nursing homes be (or be assumed to be) much more limited than in hospitals?"

Hospital patients are normally under more frequent and intensive surveillance by attending physicians for specific and treatable maladies; whereas, nursing-home patients normally present the inevitable signs of aging—plus localized conditions, such as the lack of mobility or dehydration/malnutrition. But the nursing-home patient—whose outlook, at best, is usually pretty desolate—may still cling to the hope of living yet a while longer. After all, some nursing-home residents can realistically look forward to resuming life elsewhere. Physicians' visits, counsel and words of cheer may make a world of difference to a patient who looks forward to a longer and more comfortable life in this "home" from which comparatively few residents depart.

The IOM study found "profound changes" needed in the regulation system, as well as more conscientious enforcement of these regulations. It documents the poor quality of care and life in a high proportion of nursing homes, and calls for thorough and frequent professional assessment of each resident's condition, emphasizing the importance of environment, emotional well-being, personal rights and community interaction. Such assessments are said to rarely be made, and even more rarely reviewed.

For these, the frailest of our fellow humans, there is much that all of us can do—especially those who bring them the ministry of medicine.

Cancer Chemotherapy

THE MEDICAL LETTER

Chemotherapy can produce long-term remissions in patients with some types of cancer. Drugs can cure some patients with choriocarcinoma, Hodgkin's disease, acute lymphocytic and myelogenous leukemia, testicular cancer, and non-Hodgkin's lymphoma. In other types of cancer, adjuvant chemotherapy is used in combination with surgery or radiotherapy, and "neo-adjuvant" chemotherapy is given initially to decrease the size of large primary tumors. Most effective chemotherapeutic regimens use combinations of drugs. Since the last Medical Letter review of this subject (Vol 27, p 13, 1985), some new drugs have become available.

TOXICITY—Nausea and vomiting, alopecia, and bone marrow depression occur frequently, but are usually reversible. Some anticancer drugs may transiently or permanently damage the nervous system, heart, lungs, liver, kidneys, gonads, or other organs, and some of these agents are themselves carcinogenic. Severe immunosuppression can lead to life-threatening infection. Women and men should be warned to avoid conception while being treated with these agents.

OTHER TREATMENT—**Surgical excision**, the preferred method of treatment for most primary circumscribed tumors, can cure many patients with cancer. **Radiation** is the primary treatment for some patients with Hodgkin's disease and non-Hodgkin's lymphoma, some stages of cervical cancer, some malignant tumors of the head and neck, and localized testicular seminoma. Radiation is used in conjunction with surgery for breast cancer, endometrial cancer, malignant gliomas, pediatric solid tumors, rectal cancer, and soft tissue sarcomas, and can also be useful for local control or palliation of many other types of malignancies. Radiation therapy is frequently used in combination with chemotherapy, but the toxicity of both may be increased when they are used at the same time or sequentially. **Bone marrow transplantation** is an important form of treatment in patients with some types of hematological malignancy, particularly acute myelocytic leukemia. Endocrine gland ablation or pharmacological doses of **hormones** or antihormones are beneficial in some types of cancer.

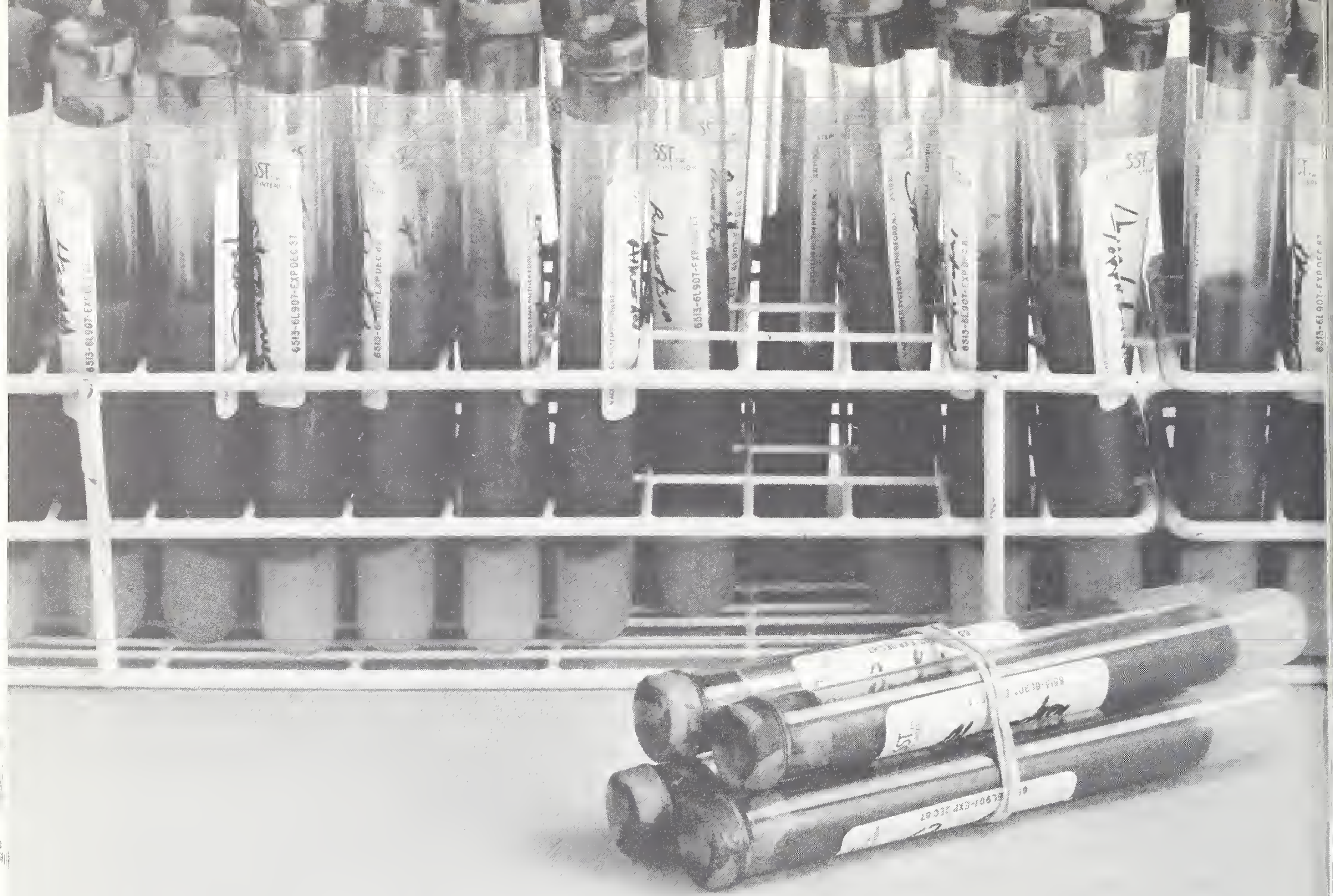
THE TABLES—The tables that follow list the drugs currently used for treatment of major types of cancer. They are not meant as a guide to selection of drugs for individual patients and do not describe doses, sequences, modes, or timing of administration. Some drugs are listed for indications for which they have not been approved for marketing by the U.S. Food and Drug Administration. Commercially available anticancer drugs and their adverse effects are listed in Table 2. Table 3 lists some drugs currently available in the U.S.A. only from the National Cancer Institute or from the manufacturer.

Table 1
DRUGS COMMONLY USED FOR DIFFERENT TYPES OF CANCER

Cancer Type	*Drugs Currently Preferred*	*Alternative Drugs*
DISEASES IN WHICH CHEMOTHERAPY HAS MAJOR ACTIVITY		
Acute lymphocytic leukemia (ALL)	Induction: vincristine + prednisone ± asparaginase ± doxorubicin or daunorubicin	Cyclophosphamide, cytarabine, thioguanine, vindesine*, teniposide*, mitoxantrone*, etoposide, ifosfamide*
	CNS prophylaxis: intrathecal methotrexate ± radiotherapy	CNS prophylaxis: high dose IV methotrexate + intrathecal methotrexate
	Maintenance: combination chemotherapy with methotrexate + mercaptopurine or other combinations	Maintenance: doxorubicin and/or asparaginase in addition to methotrexate and mercaptopurine
	Bone marrow transplant for chemotherapy failures	
Acute myelocytic leukemia (AML)	Daunorubicin + cytarabine ± thioguanine Marrow transplantation with cyclophosphamide and total body irradiation	High dose cytarabine, mitoxantrone*, azacitidine*, etoposide, amsacrine*, teniposide*, ifosfamide*

* Available only for investigational use.
** Drugs have major activity only when combined with surgical resection, radiotherapy, or both (adjuvant chemotherapy).

Reprinted with permission from *The Medical Letter*, Vol. 29, March 27, 1987.



HIV Positive Confirmed. Then What?

AIDS is tough to treat. Ruthless to an increasing patient population, it challenges physicians and nurses as never before in their commitment to quality care.

The Spellman Center for HIV-Related Disease at St. Clare's Hospital and Health Center in New York City, accepts the challenge posed by AIDS and HIV infection. The first facility in the tri-state region to devote its resources solely to the care of AIDS patients, the Spellman Center designates its highest priority as compassionate patient care. A dedicated staff provides comprehensive medical, nursing, psychosocial, and dental treatment in an atmosphere that is warm and understanding.

The Spellman Center—a 60-bed Acute Care Unit, Emergency Service, Outpatient, Ambulatory Infusion and Dental Clinics—accepts referrals of patients with CDC-confirmed AIDS or ARC (AIDS-related complex), and those who are seropositive for HIV. Spellman also reaches out to offer testing, counseling and treatment to persons at risk for AIDS.

If you need consultation concerning your patients, or more information, please call Dr. Debra Spicehandler, the Medical Director, at (212) 307-1161.

The Spellman Center also maintains an information hotline for patients with questions about AIDS: 1-800-433-AIDS.

The Spellman Center
for HIV-Related Disease
A Designated AIDS Treatment Facility
St. Clare's Hospital and Health Center

SC

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

Table 1 ***(continued)***

Cancer Type	*Drugs Currently Preferred*	*Alternative Drugs*
Breast cancer**	Tamoxifen, progestins Cyclophosphamide + methotrexate + fluorouracil ±prednisone (CMF or CMFP) Cyclophosphamide + doxorubicin ± fluorouracil (AC or CAF)	Vincristine, vinblastine, mitomycin, mitolactol*, mitoxantrone*, teniposide*, estrogens, androgens, progestins, prednisone, aminoglutethimide, etoposide, ifosfamide*
Choriocarcinoma	Methotrexate ± dactinomycin	Vinblastine, chlorambucil, bleomycin, etoposide, cisplatin, methotrexate with leucovorin rescue
Embryonal rhabdomyosarcoma**	Vincristine + dactinomycin + cyclophosphamide (VAC) ± doxorubicin Vincristine + doxorubicin + cyclophosphamide	Methotrexate, thiotepa, cisplatin, dacarbazine
Ewing's sarcoma**	Cyclophosphamide + doxorubicin +vincristine (CAV)	Dactinomycin, etoposide ± ifosfamide*
Hairy cell leukemia	Interferon or deoxycoformycin*	Chlorambucil
Hodgkin's disease	Mechlorethamine + vincristine +procarbazine + prednisone (MOPP) Doxorubicin + bleomycin +vinblastine + dacarbazine (ABVD) ± cyclophosphamide MOPP alternated with ABVD Chlorambucil + vinblastine + procarbazine + prednisone (CVPP) ± carmustine Mechlorethamine + vincristine + procarbazine + doxorubicin + bleomycin + vinblastine (MOP/ABV)	Lomustine, carmustine, etoposide, teniposide*, streptozocin, methotrexate, ifosfamide*, mitoguazone* Marrow transplantation with lomustine, cyclophosphamide, etoposide
Lung small cell (oat cell)	Cyclophosphamide + doxorubicin + vincristine (CAV) Etoposide +cisplatin ± vincristine Cyclophosphamide + doxorubicin + etoposide (CAE) Methotrexate + doxorubicin + cyclophosphamide + lomustine (MACC)	Cyclophosphamide + doxorubicin + vincristine + etoposide (CAVE) Methotrexate, vincristine, cyclophosphamide, lomustine, procarbazine, mechlorethamine, ifosfamide*, carboplatin*
Non-Hodgkin's lymphoma Burkitt's lymphoma	Cyclophosphamide Cyclophosphamide + vincristine + methotrexate Cyclophosphamde + high dose cytarabine ± methotrexate with leucovorin	Carmustine, methotrexate, ifosfamide*
Diffuse histiocytic lymphoma	Cyclophosphamide + doxorubicin + vincristine + prednisone (CHOP) Bleomycin + doxorubicin + cyclophosphamide + vincristine + prednisone (BACOP) Bleomycin + doxorubicin + cyclophosphamide + vincristine + prednisone + methotrexate with leucovorin rescue (M-BACOP) Prednisone + methotrexate-leucovorin + doxorubicin + cyclophosphamide + etoposide-mechlorethamine + vincristine + procarbazine + prednisone (ProMACE-MOPP) Bleomycin + doxorubicin + cyclophosphamide + vincristine + prednisone + procarbazine (COP-BLAM) Methotrexate with leucovorin + doxorubicin + cyclophosphamide + vincristine + prednisone + bleomycin (MACOP-B) Cyclophosphamide + vincristine + methotrexate-leucovorin + cytarabine (COMLA)	Bleomycin, chlorambucil, lomustine, carmustine, cytarabine, etoposide, teniposide*, amsacrine*, methotrexate, high dose cytarabine, ifosfamide* Bone marrow transplantation with high dose cyclophosphamide and total body irradiation
Osteogenic sarcoma**	Doxorubicin and/or high-dose methotrexate + leucovorin rescue ± cisplatin ± bleomycin ± cyclophosphamide ± dactinomycin	Melphalan, mitomycin, ifosfamide*
Testicular	Cisplatin + vinblastine + bleomycin (PVB) Bleomycin + etoposide + cisplatin (BEP) Vinblastine + dactinomycin + bleomycin + cyclophosphamide + cisplatin (VAB-6)	Doxorubicin, vincristine, ifosfamide*, carboplatin*, etoposide, cyclophosphamide, methotrexate, plicamycin, dactinomycin, melphalan, chlorambucil
Wilms' tumor**	Dactinomycin + vincristine ± doxorubicin	Doxorubicin, cyclophosphamide, cisplatin, ifosfamide*, etoposide

* Available only for investigational use.

** Drugs have major activity only when combined with surgical resection, radiotherapy, or both (adjuvant chemotherapy).

Table 1 *(continued)*

Cancer Type	*Drugs Currently Preferred*	*Alternative Drugs*
DISEASES IN WHICH CHEMOTHERAPY HAS MODERATE ACTIVITY		
Adrenocortical carcinoma	Miotane Cisplatin	Doxorubicin, aminoglutethimide, cyclophosphamide
Bladder	Cisplatin and/or doxorubicin ± methotrexate ± vinblastine (M-VAC) Instillation of thiotepa or doxorubicin or BCG* or mitomycin	Mitomycin, fluorouracil, vinblastine, methotrexate, instillation of interferon
Brain		
glioblastoma	Carmustine or lomustine	Semustine*, procarbazine, vincristine, cisplatin, cyclophosphamide, mechlorethamine
medulloblastoma	Vincristine + carmustine ± mechlorethamine ± methotrexate Mechlorethamine + vincristine + procarbazine + prednisone (MOPP) Vincristine + cisplatin	
Cervix	Cisplatin + bleomycin ± methotrexate Bleomycin + mitomycin + vincristine ± cisplatin	Cyclophosphamide, vincristine, methotrexate, mitomycin, fluorouracil, doxorubicin, vinblastine
Chronic lymphocytic leukemia	Chlorambucil ± prednisone	Cyclophosphamide, vincristine, deoxycoformycin*
Chronic myelocytic leukemia (CML)		
Chronic phase	Busulfan Hydroxyurea Bone marrow transplantation with cyclophosphamide and total body irradiation	Mitobronitol*, mercaptopurine, thioguanine, melphalan, interferon
Acute phase	Daunorubicin + cytarabine + vincristine + prednisone ± thioguanine Vincristine + prednisone for lymphoid variant	Amsacrine*, azacitidine*, vincristine, high-dose cytarabine, plicamycin
Endometrial	Megestrol acetate or hydroxyprogesterone caproate or medroxyprogesterone acetate Doxorubicin ± cyclophosphamide ± cisplatin	Fluorouracil, tamoxifen, melphalan
Gastric	Fluorouracil + doxorubicin + mitomycin (FAM) Fluorouracil + doxorubicin + semustine*	Cisplatin, fluorouracil
Head and neck, squamous cell	Bleomycin + cisplatin ± methotrexate Cisplatin + fluorouracil	Vinblastine, cyclophosphamide, mitomycin, doxorubicin
Islet cell carcinoma	Streptozocin ± fluorouracil	Cyclophosphamide, doxorubicin, dacarbazine, somatostatin*
Kaposi's sarcoma (epidemic)	Etoposide or interferon	Cyclophosphamide, vinblastine, vincristine
Mycosis fungoides	Combination chemotherapy as in Hodgkin's disease or non-Hodgkin's lymphoma Mechlorethamine (topical)	Vinblastine, methotrexate, psoralen + ultraviolet light (PUVA), interferon, deoxycoformycin*, etretinate
Myeloma	Melphalan (or cyclophosphamide) + prednisone Melphalan + carmustine + cyclophosphamide + prednisone Dexamethasone + doxorubicin + vincristine	Carmustine, vincristine, lomustine, doxorubicin, interferon
Neuroblastoma	Doxorubicin + cyclophosphamide + cisplatin + teniposide* Doxrubicin + cyclophosphamide Cisplatin + cyclophosphamide	Mechlorethamine, daunorubicin, dacarbazine, vinblastine, prednisone, cisplatin, teniposide*, etoposide
Non-Hodgkin's lymphoma		
Follicular lymphoma	Cyclophosphamide or chlorambucil ± vincristine and prednisone or etoposide (combinations not demonstrably superior to single agents)	Cytarabine, asparaginase, methotrexate, interferon
Ovary	Melphalan (or cyclophosphamide) ± cisplatin ± doxorubicin (CP, CAP) Cyclophosphamide + hexamethylmelamine* + doxorubicin + cisplatin (CHAP)	Hexamethylmelamine*, fluorouracil, chlorambucil, thiotepa, ifosfamide*, megestrol acetate, carboplatin* Intraperitoneal: fluorouracil, methotrexate, melphalan, cisplatin, doxorubicin

* Available only for investigational use.

Table 1 *(continued)*

Cancer Type	*Drugs Currently Preferred*	*Alternative Drugs*
Prostate	Diethylstilbestrol, other estrogens, leuprolide or depot-formulation of LHRH analogs Cisplatin ± cyclophosphamide ± doxorubicin ± fluorouracil	Estramustine, megestrol acetate, fluorouracil, cyproterone*, flutamide*, methotrexate, mitoguazone*, streptozocin
Retinoblastoma	Doxorubicin + cyclophosphamide Doxorubicin + cyclophosphamide + cisplatin + teniposide*	
Sarcomas (soft tissue, adult)	Doxorubicin + dacarbazine + cyclophosphamide ± vincristine Doxorubicin + dacarbazine Doxorubicin + dacarbazine + ifosfamide*	Methotrexate, cisplatin
DISEASES IN WHICH CHEMOTHERAPY HAS MINOR ACTIVITY		
Colorectal	Fluorouracil Intra-arterial floxuridine (hepatic metastases)	Methotrexate, fluorouracil + leucovorin, ifosfamide*
Liver	Doxorubicin Fluorouracil ± methotrexate ± semustine*	Fluorouracil, floxuridine, etoposide, intra-arterial floxuridine
Lung non-small cell	Cyclophosphamide + doxorubicin + cisplatin (CAP) Vindesine* + cisplatin ± mitomycin Vinblastine + cisplatin ± mitomycin Fluorouracil + doxorubicin + mitomycin (FAM) Methotrexate + doxorubicin + cyclophosphamide + lomustine (MACC)	Methotrexate, etoposide, lomustine, fluorouracil, ifosfamide*, mitomycin, mitomycin + vinblastine, carboplatin*, procarbazine
Melanoma	Dacarbazine or semustine*	Dactinomycin, carmustine, procarbazine, vinblastine, interferon, ifosfamide*
Pancreatic	Fluorouracil + doxorubicin + mitomycin (FAM) Streptozocin + mitomycin + fluorouracil (SMF)	Mitomycin, doxorubicin, streptozocin, semustine*, ifosfamide*
Renal	Interferon	Vinblastine, lomustine, lymphokine-activated killer (LAK) cells + interleukin-2*, progestins

* Available only for investigational use.

Table 2

SOME COMMERCIALLY AVAILABLE ANTICANCER DRUGS AND HORMONES

Dose-limiting effects are in bold type

Drug	*Acute Toxicity*	*Delayed Toxicity**
Aminoglutethimide (*Cytadren*—Ciba)	Drowsiness; nausea; dizziness; rash	Hypothyroidism (rare); bone marrow depression; fever; hypotension; masculinization
Asparaginase (*Elspar*—Merck; *Kidrolase*—Rhône-Poulenc)	**Nausea and vomiting; fever**, chills; headache; hypersensitivity, anaphylaxis; abdominal pain; hyperglycemia leading to coma	CNS depression or hyperexcitability; acute hemorrhagic pancreatitis; coagulation defects; thrombosis; renal damage; hepatic damage
Bleomycin (*Blenoxane*—Bristol-Myers)	Nausea and vomiting; fever; anaphylaxis and other allergic reactions	**Pneumonitis and pulmonary fibrosis; rash and hyperpigmentation;** stomatitis; alopecia; Raynaud's phenomenon
Busulfan (*Myleran*—Burroughs Wellcome)	Nausea and vomiting; rare diarrhea	**Bone marrow depression;** pulmonary infiltrates and fibrosis; alopecia; gynecomastia; ovarian failure; azoospermia; leukemia; chromosome aberrations; cataracts; Addisonian syndrome
Carmustine (BCNU; *BiCNU*—Bristol-Myers)	**Nausea and vomiting;** local phlebitis	**Delayed leukopenia and thrombocytopenia** (may be prolonged); pulmonary fibrosis (may be irreversible); delayed renal damage; gynecomastia; reversible liver damage; carcinogenesis
Chlorambucil (*Leukeran*—Burroughs Wellcome)	Seizures	**Bone marrow depression;** pulmonary infiltrates and fibrosis; leukemia; hepatic toxicity; sterility
Cisplatin (Cis-Diamminedichloroplatinum; Cis-DDP; *Platinol*—Bristol-Myers)	**Nausea and vomiting;** anaphylactic reactions; fever; hemolytic-uremic syndrome	**Renal damage;** bone marrow depression; ototoxicity; hemolysis; hypomagnesemia; peripheral neuropathy; hypocalcemia; hypokalemia; Raynaud's syndrome; sterility

* Cutaneous reactions (sometimes severe), hyperpigmentation, and ocular toxicity have been reported with virtually all nonhormonal anticancer drugs.

AIM HIGH

A PRESCRIPTION FOR PHYSICIANS

BOTHERED BY:

- ★ Too much paperwork?
- ★ The burden of office overhead?
- ★ Malpractice insurance costs?
- ★ Not enough time for the family?
- ★ No time to keep current with technology and new methods?
- ★ No time or money for professional development?

JOIN THE AIR FORCE MEDICAL TEAM; WE'LL PROVIDE THE FOLLOWING:

- ★ Competent and dedicated professional staff.
- ★ Time for patients and for keeping professionally current.
- ★ Financial security, a generous retirement for those who qualify.
- ★ If qualified, unlimited professional development.
- ★ Medical facilities all around the world.
- ★ 30 days of vacation with pay each year.
- ★ Complete medical and dental care.
- ★ Low cost life insurance.

Want to find out more? Contact your nearest Air Force recruiter for information at no obligation. Call

TSgt Joseph Laferriere
203-745-1128
Collect

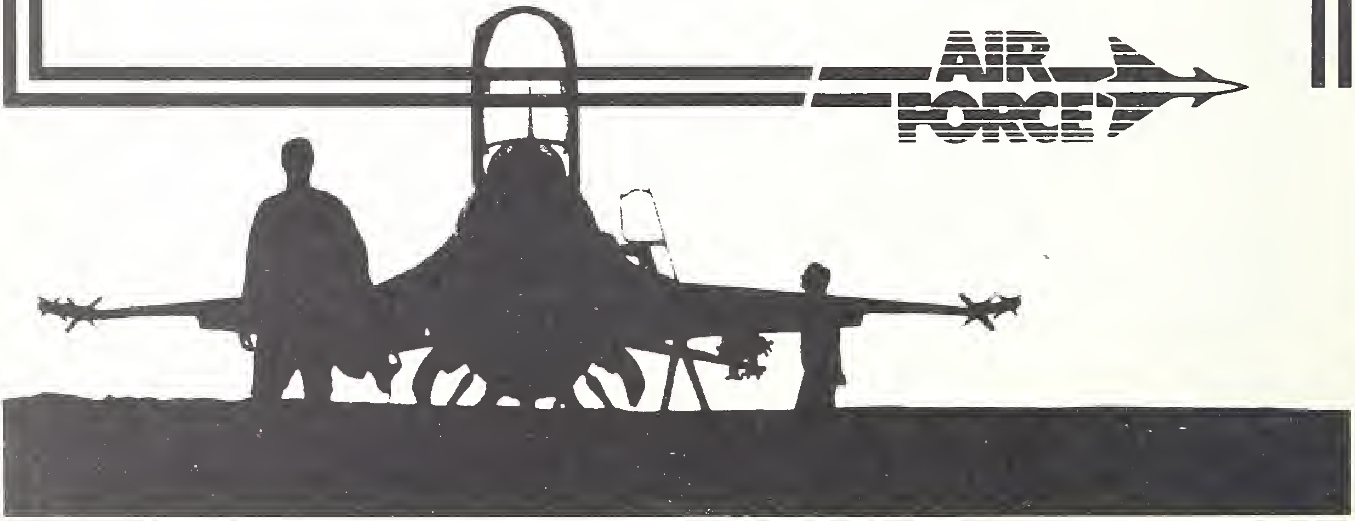


Table 2 *(continued)*

Drug	*Acute Toxicity*	*Delayed Toxicity**
Cyclophosphamide (*Cytoxan*—Bristol-Myers; *Neosar*—Adria; *Procytox*—Horner)	**Nausea and vomiting**; Type I (anaphylactoid) hypersensitivity; facial burning with IV administration	**Bone marrow depression**; alopecia; hemorrhagic cystitis, sterility (may be temporary); pulmonary infiltrates and fibrosis; hyponatremia; leukemia; bladder cancer; inappropriate ADH secretion
Cytarabine HCl (cytosine arabinoside; *Cytosar-U*—Upjohn)	**Nausea and vomiting**; diarrhea; anaphylaxis	**Bone marrow depression**; conjunctivitis; megaloblastosis; oral ulceration; hepatic damage; fever; pulmonary edema and encephalopathy with high doses
Dacarbazine (DTIC; *DTIC-Dome*—Miles; and others)	**Nausea and vomiting**; diarrhea; anaphylaxis; pain on adminstration	**Bone marrow depression**; alopecia; flu-like syndrome; renal impairment; hepatic necrosis; facial flushing, paresthesia; photosensitivity; urticarial rash
Dactinomycin (actinomycin D; *Cosmegen*—Merck)	**Nausea and vomiting**; diarrhea; local reaction and phlebitis; anaphylactoid reaction	**Stomatitis; oral ulceration; bone marrow depression**; alopecia; folliculitis; dermatitis in previously irradiated areas
Daunorubicin (*Cerubidine*—Wyeth)	**Nausea and vomiting**; diarrhea; red urine (not hematuria); severe local tissue damage and necrosis on extravasation; transient EKG changes; anaphylactoid reaction	**Bone marrow depression; cardiotoxicity**; alopecia; stomatitis; anorexia; diarrhea; fever and chills; dermatitis in previously irradiated areas
Doxorubicin (*Adriamycin*—Adria)	**Nausea and vomiting**; red urine (not hematuria); severe local tissue damage and necrosis on extravasation; diarrhea; fever; transient EKG changes; ventricular arrhythmia; anaphylactoid reaction	**Bone marrow depression; cardiotoxicity**; alopecia; stomatitis; anorexia; conjunctivitis; acral pigmentation; dermatitis in previously irradiated areas
Estramustine phosphate sodium (*Emcyt*—Roche)	Nausea and vomiting; diarrhea	Mild gynecomastia; increased frequency of vascular accidents; myelosuppression (uncommon); edema; dyspnea; pulmonary infiltrates and fibrosis; leukemia
Etoposide (VP16-213; *VePesid*—Bristol-Myers)	**Nausea and vomiting**; diarrhea; fever; hypotension	**Bone marrow depression**; alopecia; peripheral neuropathy; allergic reactions; hepatic damage with high doses
Floxuridine (*FUDR*—Roche)	**Nausea and vomiting**; diarrhea	**Oral and gastrointestinal ulceration; bone marrow depression**; alopecia; dermatitis; hepatic dysfunction with hepatic infusion
Fluorouracil (5-FU; *Fluorouracil*—Roche; and others)	**Nausea and vomiting**; diarrhea; hypersensitivity reaction	**Oral and GI ulcers; bone marrow depression**; neurological defects, usually cerebellar; alopecia; hyperpigmentation
Hydroxyurea (*Hydrea*—Squibb)	Nausea and vomiting; allergic reactions to tartrazine dye	**Bone marrow depression**; stomatitis; dysuria; alopecia; rare neurological disturbances
Interferon (*Roferon-A*—Roche; *Intron-A*—Schering)	Fever; chills; myalgias; fatigue; headache; arthralgias; hypotension	Bone marrow depression; anorexia; renal damage; hepatic damage
Leuprolide (LG-releasing hormone analog; *Lupron*—TAP)	Transient increase in bone pain; hot flashes	Impotence; amenorrhea; testicular atrophy
Lomustine (CCNU; *CeeNU*—Bristol-Myers)	Nausea and vomiting	**Delayed (4 to 6 weeks) leukopenia and thrombocytopenia** (may be prolonged); transient elevation of transaminase activity; neurological reactions; pulmonary fibrosis; renal damage
Mechlorethamine (nitrogen mustard; *Mustargen*—Merck)	**Nausea and vomiting**; local reaction and phlebitis	**Bone marrow depression**; alopecia; diarrhea; oral ulcers; leukemia; sterility
Melphalan (*Alkeran*—Burroughs Wellcome)	Mild nausea; hypersensitivity reactions	**Bone marrow depression** (especially platelets); pulmonary infiltrates and fibrosis; leukemia; inappropriate ADH secretion
Mercaptopurine (6-MP; *Purinethol*—Burroughs Wellcome)	Nausea and vomiting; diarrhea	**Bone marrow depression; cholestasis and rarely hepatic necrosis; oral and intestinal ulcers**; pancreatitis; allopurinol may increase overall toxicity
Methotrexate (MTX; *Methotrexate*—Lederle; and others)	**Nausea and vomiting**; diarrhea; fever; anaphylaxis	**Oral and gastrointestinal ulceration**, perforation may occur; **bone marrow depression**; hepatic toxicity including cirrhosis and acute hepatic

* Cutaneous reactions (sometimes severe), hyperpigmentation, and ocular toxicity have been reported with virtually all nonhormonal anticancer drugs.

Table 2 *(continued)*

Drug	*Acute Toxicity*	*Delayed Toxicity**
		necrosis; renal toxicity; pulmonary infiltrates and fibrosis; osteoporosis; alopecia; depigmentation; menstrual dysfunction; encephalopathy and anaphylactoid reactions with high doses; chemical arachnoiditis and rarely necrotizing encephalitis with intrathecal administration
Mitomycin (*Mutamycin*—Bristol-Myers)	**Nausea and vomiting;** local reaction; fever	**Bone marrow depression** (cumulative); stomatitis; alopecia; acute pulmonary toxicity; pulmonary fibrosis; hepatotoxicity; renal toxicity; hemolytic-uremic syndrome
Mitotane (o,p'-DDD; *Lysodren*—Bristol-Myers)	**Nausea and vomiting;** diarrhea	**CNS depression;** rash; visual disturbances; adrenal insufficiency; brain damage with long-term high dosage; hematuria; hemorrhagic cystitis; albuminuria; hypertension; orthostatic hypotension; cataracts
Plicamycin (*Mithracin*—Miles)	**Nausea and vomiting;** diarrhea; fever	**Hemorrhagic diathesis; bone marrow depression** (thrombocytopenia); coagulation abnormalities; hepatic damage; hypocalcemia and hypokalemia; stomatitis; renal damage
Procarbazine HCl (*Matulane*—Roche; *Natulan*—Roche of Canada)	**Nausea and vomiting;** CNS depression; Antabuse-like effect with alcohol	**Bone marrow depression;** stomatitis; peripheral neuropathy; pneumonitis; leukemia
Streptozocin (streptozotocin; *Zanosar*—Upjohn)	**Nausea and vomiting;** local pain; chills and fever	**Renal damage;** hypoglycemia; hyperglycemia; liver damage; diarrhea; bone marrow depression (uncommon); fever; eosinophilia
Tamoxifen citrate (*Nolvadex*—Stuart)	Nausea and vomiting; hot flashes; transient increased bone or tumor pain	Vaginal bleeding and discharge; rash; hypercalcemia; thrombocytopenia; peripheral edema; depression; dizziness; headache; decreased visual acuity; corneal changes; retinopathy
Thioguanine (*Thioguanine*—Burroughs Wellcome)	Occasional nausea and vomiting	Bone marrow depression; hepatic damage; stomatitis
Thiotepa (triethylenethiophosphoramide; *Thiotepa*—Lederle)	**Nausea and vomiting;** local pain	**Bone marrow depression;** menstrual dysfunction; interference with spermatogenesis; leukemia
Vinblastine sulfate (*Velban*—Lilly; and others)	**Nausea and vomiting;** local reaction and phlebitis with extravasation	**Bone marrow depression;** alopecia; stomatitis; loss of deep tendon reflexes; jaw pain; muscle pain; paralytic ileus; inappropriate ADH secretion
Vincristine sulfate (*Oncovin*—Lilly; *Vincasar*—Adria)	Local reaction with extravasation	**Peripheral neuropathy;** alopecia; mild bone marrow depression; constipation; paralytic ileus; inappropriate ADH secretion; hepatic damage; jaw pain

* Cutaneous reactions (sometimes severe), hyperpigmentation, and ocular toxicity have been reported with virtually all nonhormonal anticancer drugs.

Table 3
SOME INVESTIGATIONAL DRUGS

Drug	*Acute Toxicity*	*Delayed Toxicity**
Amasacrine (AMSA; Bristol-Myers, *Amsidyl*—Parke-Davis, Warner-Lambert)	Nausea and vomiting; diarrhea; pain or phlebitis on infusion; anaphylaxis	Bone marrow depression; hepatic injury; convulsions, stomatitis; ventricular fibrillation; alopecia
Azacitidine (*Mylosar*—Upjohn)	Nausea and vomiting; diarrhea; fever; drowsiness	Leukopenia (may be prolonged); thrombocytopenia; hepatic damage; muscle pain and weakness; bone marrow depression; possibly cardiotoxicity
Bisantrene HCl (ADC, ADAH; Lederle)	Nausea and vomiting; hypotension; flu-like illness; fever; phlebitis	Leukopenia; thrombocytopenia
Carboplatin (*Paraplatin*—Bristol-Myers)	Nausea and vomiting	Bone marrow depression; peripheral neuropathy (uncommon)
Deoxycoformycin (DCF; *Pentostatin*)	Nausea and vomiting	Nephrotoxicity; CNS depression; leukopenia; thrombocytopenia
* *Flutamide (anti-androgen; Eulexin; Euflex*—Schering; *Anandron)*	Nausea	Gynecomastia; hepatotoxicity

* Commercially available in Canada

Table 3 *(continued)*

Drug	*Acute Toxicity*	*Delayed Toxicity**
Hexamethylmelamine (HMM)	Nausea and vomiting	Bone marrow depression; visual disturbances (reversible); CNS depression; peripheral neuritis; visual hallucinations; ataxia
Ifosfamide (*Ifex*—Bristol-Myers)	Nausea and vomiting; confusion	Bone marrow depression; hemorrhagic cystitis (prevented by concurrent 2-mercaptoethanol sodium sulphonate [mesna]); alopecia; sterility (may be temporary); nephrotoxicity; inappropriate ADH secretion
Interleukin-2 (*Cetus*—Biogen)	Fluid retention; hypotension; rash; anemia; thrombocytopenia; nausea and vomiting; diarrhea; capillary leak syndrome; nephrotoxicity; myocardial toxicity; hepatoxicity	Unknown
Mitobronitol (*Myelobromol*—Sinclair, UK)	GI disturbances	Bone marrow depression; alopecia
Mitoguazone (methyl-GAG; methylglyoxal Bis guanylhydrazone; MGBG)	Nausea and vomiting, fatigue	Myopathy, paresthesia, bone marrow depression, ventricular arrhythmias, stomatitis, gastrointestinal ulcerations
Mitolactol	Mild nausea	Bone marrow depression
* Mitoxantrone HCI (DHAD; *Novantrone*—Lederle)	Blue-green pigment in urine; blue-green sclera; nausea and vomiting	Bone marrow depression; cardiotoxicity; stomatitis; alopecia; white hair
Semustine (methyl-CCNU; Bristol-Myers)	Nausea and vomiting	Delayed leukopenia and thrombocytopenia (may be prolonged); pulmonary fibrosis; leukemia; renal failure
* Teniposide (VM-26; *Vumon*—Bristol-Myers)	Nausea and vomiting; diarrhea; phlebitis; anaphylactoid symptoms	Bone marrow depression; alopecia; peripheral neuropathy
* Vindesine sulfate (*Eldisine*—Lilly)	Local reaction if extravasation; fever; nausea and vomiting; diarrhea	Bone marrow depression; alopecia; peripheral neuropathy; jaw pain

* Commercially available in Canada

PARTIAL LIST OF BRAND NAMES

Adriamycin — doxorubicin
**Adrucil* — fluorouracil
Alkeran — melphalan
BiCNU — carmustine
Blenoxane — bleomycin
CeeNU — lomustine
Cerubidine — daunorubicin
Cosmegen — dactinomycin
Cytadren — aminoglutethimide
Cytosar-U — cytarabine
Cytoxan — cyclophosphamide
Depo-Provera — medroxyprogesterone acetate
**DTIC-Dome* — dacarbazine
Eldisine — vindesine
Elspar — asparaginase
Emcyt — estramustine phosphate sodium
Eulexin — flutamide
**Folex* — methotrexate
FUDR — floxuridine
Hydrea — hydroxyurea
Ifex — ifosfamide
Intron-A — interferon
Leukeran — chlorambucil
Lupron — leuprolide
Lysodren — mitotane
Matulane — procarbazine
Megace — megestrol acetate
**Mexate* — methotrexate
Mithracin — plicamycin
Mustargen — mechlorethamine
Mutamycin — mitomycin
Myelobromol — mitobronitol
Myleran — busulfan
Mylosar — azacitidine
Neosar — cyclophosphamide
Nolvadex — tamoxifen citrate
Novantrone — mitoxantrone
Oncovin — vincristine sulfate
Paraplatin — carboplatin
Platinol — cisplatin
Purinethol — mercaptopurine
Roferon-A — interferon
**Velban* — vinblastine sulfate
Vepesid — etoposide
Vincasar — vincristine
Zanosar — streptozocin

* Also available generically

1987 - 1988 The Physicians Protection Plan from CNA

AAW Physician Plans, Inc. believes Connecticut's physicians deserve a candid disclosure of the critical factors affecting their professional liability insurance.

Described below are major features of the CNA Physicians Protection Plan — a plan we are proud to sponsor.

Some features are consistent with past practices. Others are new. We encourage you to give each of them careful consideration.

In this publication's next issue, we will present new premium rates effective for the coming year.

Major Features

Defendant Reimbursement is available (up to $300 per day, $7,500 limit) for time away from your practice for court appearances for a professional liability suit.

Legal Defense payments are also provided in addition to liability limits.

Partnerships and Corporations are insured, as well as all physicians in your practice whom you name.

Pathology and X-ray Laboratories that constitute an unusual exposure will be given individual consideration.

Medical Laboratories maintained within your office for testing your patients may be covered, provided a separate entity is not established for the laboratory. (A separate entity can be included as an additional named insured.)

Claim Handling is provided by the experienced CNA professionals located in Farmington, Connecticut. No claim will be settled without your consent.

New Features

Liability Limits have been revised in response to requests for increased annual aggregate limits:

Per Claim Limits	Annual Aggregate Limits
1. $1,000,000	$1,000,000
2. $1,000,000	$3,000,000
3. $2,000,000	$4,000,000
4. $3,000,000	$5,000,000
5. $4,000,000	$4,000,000
6. $5,000,000	$5,000,000

Office Personnel are currently provided a separate liability limit of $100,000/$300,000 for employees not specifically named (nurses, pharmacists, optometrists, X-ray technicians, etc.) while acting within the scope of employment for you. Effective October 1, 1987, they will continue to be covered, but will share in the liability limits of your policy.

Claims-Made Protection will be the *only* protection option available through your CNA policy effective September 30, 1987.

Presently, over 60% of the physicians insured by CNA in Connecticut have claims-made policies. In recent years, it has become increasingly apparent that rising premiums would prompt this switch to claims-made protection.

The claims-made policy specifies certain claims that will *not* be covered:

- claims arising from incidents occurring before the prior acts date (day one), or
- claims arising from incidents occurring after the prior acts date if, on the inception date of this policy, you knew or could reasonably have foreseen that it would result in a claim, or
- claims that occur on the inception date of this policy, when a pending claim or proceeding is a paid claim.

Extended Reporting Endorsement (commonly called *tail coverage*) is also available at no charge for physicians who have been continuously insured with CNA (either on the *occurrence* form, *claims-made,* or some combination) for at least 5 years.

The age requirement for retirement is reduced from age 65 to age 60 effective October 1, 1987.

Antitrust coverage is expanded effective October 1, 1987, to include activities as a member of *any* committee, panel, or board which provides peer reviews.

Contractual Liability has been expanded to include liability assumed by contract with an HMO, PPO, IPA, or other similar organizations attributable to a CNA insured.

Additional Features

Part-time Physicians may qualify for reduced rates. Please inquire.

CNA RDX Coverage is available to provide additional liability coverage beyond that provided by the Business Account Policy or Business Auto Policy.

Personal Umbrella protection is available to cover you, your spouse, your children and any other relatives living with you for exposures in excess of your personal liability insurance, such as your homeowners or auto policies.

Office Protection offers you a choice of property and liability coverages for buildings, office contents, and loss of income.

Office Premises may also be protected against damages arising from the ownership, maintenance, occupancy, or use of your office.

Workers' Compensation Insurance is also available. Owners or partners may be included.

Employees Limited Non-owned Automobile Liability coverage protects you against damages arising from the operation of a non-owned auto by you or your employees if use is in connection with professional duties.

Premium Billing occurs in eight (8) equal installments, with no finance charges.

This information is descriptive in nature only, and not intended as an actual contract.

For additional details on the quality and reliability that have made AAW Physician Plans, Inc. the leading provider of professional liability insurance in Southern New England, contact our office at (203) 563-8311.

the
WATSON
GROUP

AAW Physician Plans, Inc.

225 Spring Street
Wethersfield, CT 06109

CSMS Members:

Let's Talk About A New Concept In Health Care.

Century 2000.

Century 2000. A Preferred Provider Program in which more than 4,000 health care providers in this state are now participating.

Century 2000. Providing quality with an emphasis on preventive care.

Century 2000. Reducing costs by encouraging members to use its managed care network of Preferred Providers.

Century 2000. For information on how you can become a Preferred Provider call 1-800-922-1742 extension 5137.

Blue Cross
Blue Shield
of Connecticut

Editorials

Autologous Blood: A Better Product

Autologous blood, the patient's own blood, is the best blood in case of need for transfusion. What's so good about a person needing transfusion receiving his or her own blood? Four considerations stand out.[1] First, there is little risk of the transmission of disease such as AIDS, hepatitis, or other infection presuming the blood is properly collected and stored by a licensed and inspected blood bank. Second, there is little risk of an incompatibility reaction, presuming the blood is properly identified and labeled with the donor/patient's name and identifying numbers, so no mix up occurs at the hospital. Third, no expensive testing (compatibility testing, disease screening) is necessary, since the blood is being returned to the same individual from whence it was taken. Fourth, with proper planning prior to an operation, the blood is readily available without an expensive search for and recruitment of blood donors. Blood can be stored in the liquid state five to six weeks, so if all goes as planned, four pints of blood can be obtained prior to surgery, kept in liquid storage in the blood bank refrigerator at the hospital, and accumulated metabolic products (potassium, lactic acid, ammonium, platelet and white cell debris) can be removed just prior to infusion by extracting the plasma and administering only the packed red blood cells.

However, surgery may be postponed or delayed for a variety of reasons, and in order to avoid wasting the patient's blood due to aging (outdating), the blood must either be reinfused and a fresh unit or two withdrawn (called "leapfrogging") or the blood must be frozen for long-term storage. Some people may prefer to pay for the frozen storage rather than undergo the repeated transfusions and collections.[2]

In addition to preoperative autologous blood donation, there is the possibility of immediate preoperative blood donation. This is easily carried out when a heart-lung machine is used for heart surgery. The patient's blood is diluted with isotonic salt solution to maintain volume replacement during surgery and the collected autologous units are returned as necessary, usually at the end of the procedure.

Intraoperative blood salvage is also a form of autologous donation used particularly in cardiac surgery,[3] vascular surgery[4] and orthopedic surgery.[5] The blood is suctioned from the operative field, mixed with anticoagulant (heparin or citrate) and collected in a processing bag. When sufficient blood is collected, processing is carried out in a "cell saver" centrifuge in which the collected red cells are washed free of debris and activated clotting factors using 750-1000 ml of saline. The washed packed cells are then pumped into a transfer bag for reinfusion to the patient. Generally, this is cost effective if three to four pints of blood are collected from the surgical field and processed for return to the patient.[5] It could be argued that such procedures are more cost effective if "cost" includes liability for adverse outcome or risk of disease transmission.

One other, unanticipated, benefit is that the commitment to autologous blood on the part of the physician and the patient often leads to a reduction in blood used during surgery (by almost one-half), but also to lower discharge hemoglobins (i.e., 9 gm/dl instead of 12 gm/dl).[4] This anemia does not seem to hinder the recovery of the patient or the long-term outcome of the surgery.

If autologous blood is so advantageous, why isn't it used all the time to the exclusion of homologous transfusion (blood from donors)? In the largest hospitals with very active surgical programs, about half the patients for whom blood is requested[1,6] could be eligible to be treated with autologous blood. The others have emergency needs or clinical conditions which do not safely allow autologous blood donation. Even those using autologous blood frequently require some supplemental homologous donor blood because hemorrhage is more extensive than expected, particularly in repeat cardiac operations for coronary bypass grafts or for hip joint replacements. Also, autologous blood cannot be taken intraoperatively from abdominal or other potentially nonsterile fields.

In contrast to autologous blood, the use of directed donations from family members and friends, while they may make the patient and family feel more secure because the donors are known to them, has no scientific advantage over properly screened and HIV antibody tested regular donor blood.[7] Directed dontions must be tested, just as regular donations must, but bear an additional expense for specific patient-donor identification, individual handling, and transmission to a particular hospital, with proper timing to be available for the day of transfusion.

Autologous blood is by far the best blood for the patient from scientific, economic, and emotional points of view. Autologous blood transfusion has been enthusiastically endorsed by the Council on Scientific Affairs of the AMA.[8] It should be used more.

Edward E. Morse, M.D.

Director Hematology, Blood Bank
Department of Laboratory Medicine
Farmington, CT

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

REFERENCES

1. Nicholls MD, Jann MR, Davis VJ and Wedderburn CE: Autologous blood transfusion for elective surgery. The Med J of Australia 1986, 144:396-9.
2. Beal R: Blood banking—public or private, isologous or autologous? The Med J of Australia 1986, 144:393-4.
3. Mayer ED, Welsch M, Tanzeem A, Saggau W, Spath J, Hummels R and Schmitz W: Reduction of postoperative donor blood requirement by use of the cell separator. Scand J Thor Cardiovasc Surg 1985, 19:165-171.
4. Tawes RL, Scribner RG, Dural TB, Beare JP, Sydorak GR, Roseman JE, Brown WH and Harris EJ: The cell saver and autologous transfusion: An underutilized resource in vascular surgery. The Am J Surg 1986, 152:105-9.
5. Bovill DF, Moulton CW, Jackson WST, Jensen K and Barcellos RW: The efficacy of intraoperative autologous transfusion in major orthopedic surgery. Orthopedics 1986, 9:1403-7.
6. Toy PTCY, Strauss RG, Stehling LC, et al: Predeposited autologous blood for elective surgery. New Eng J Med 1987, 316:517-20.
7. Cordell RR, Yalon VA, Cigahn-Haskell C, McDonough BP and Perkins HA: Experience with 11,916 designated donors. Transfusion 1986, 26:484-6.
8. Council Report: Autologous Blood Transfusions. JAMA 1986, 256:2378-80.

Editorial from the August 1947 issue of the *Journal* of the *Connecticut State Medical Society*

Our Aging Patients*

The reduced mortality of infectious diseases in the past half century has greatly increased the number of elderly persons in the population. This trend was well under way in 1940 when 26.5 per cent of the American people were over forty-five. By 1980 it is estimated that 50 per cent will have reached this age. The specific implications of this population shift upon medical practice in the next ten years have recently been thrown into focus by C. Ward Crampton, chairman of the Subcommittee on Geriatrics and Gerontology of the Public Health Committee of the Medical Society of the County of New York. Crampton points out that geriatrics will never become a clearly delineated specialty, for older persons are subject to the same diseases as younger ones, and the services of all specialties except pediatrics are necessary for their treatment. Rather, an awareness of the special problems of older people becomes essential for all practitioners of medicine and surgery.

Crampton develops at some length the necessity for recognizing various kinds of aging. He emphasizes particularly the difference between chronological age and physiological age, the latter being dependent upon endocrine and metabolic factors, some of which are subject to modification. He also devotes attention to pathological processes, such as chronic foci of infection which may in some instances contribute to the aging process.

To understand the psychologic problem of aging is perhaps the most difficult step in attaining the geriatric point of view. Older persons are satisfied with very little. As instinctive drives of earlier years lose their force conflicts wane, and psychoneurotic symptoms tend to die away. On the other hand there is often a vague sense of insecurity and loneliness which is minimized by a familiar environment. Most physicians are well acquainted with the old codger who gets along fairly well with a family retainer in a dingy old Victorian monstrosity but who becomes delirious or paranoid in the sunny southwest corner of a sparkling clean but unfamiliar nursing home. The evaluation of senility is important to the geriatrically minded physician who often must decide upon the date of a patient's retirement. It is important to comprehend the mental state of a patient about to have a cataract operation or a prostatectomy, and it is essential to choose sedatives with caution lest they increase rather than allay restlessness. Bromides often accumulate in older persons with impaired renal function. Likewise the effects of diuretics must be observed, not upon urinary output alone, but also upon the mental state, which is often confused by too rapid dehydration.

It is easy to look upon older persons as "crocks" and difficult to comprehend the problems which they face. The middle aged physician or nurse has been through childhood and adolescence, so that these phases of life are not entirely foreign to the understanding. Geriatrics require imagination, and the physician who can apply this priceless quality to the care of older persons has an established future in service and personal success.

Stanley B. Weld, M.D.

Editorial from the August 1947 issue of the *Journal* of the *Connecticut State Medical Society*

*Crampton CW "What Geriatrics Means to the Medical Profession." New York Medicine 1947, 3:21-26.

The President's Page

Random Thoughts

Since my last column, I have added some 8,000 miles to my non-frequent traveler's itinerary. This included a trip to Chicago as one of your delegates to the American Medical Association's Annual Meeting, and then on to London to meet with Lloyd's for reinsurance negotiations. On returning, there was the scheduled CSMS Council Meeting.

At the AMA, the big topic was AIDS. It may have appeared on television at the time that this was the only topic being discussed. Not true. Others included mandatory assignment, foreign medical graduates, the Health Policy Agenda, and medication dispensing by physicians.

Mandatory assignment was discussed in committee thoroughly, with many state delegations asking the Massachusetts delegation what had happened. Our delegation was also asked how we had handled the matter in Connecticut. The New Jersey delegates, whose legislature had defeated the proposed bill decisively, supported my contention that one had to elect legislators who recognized that mandatory assignment was an infringement of the constitutional right of physicians to accept or decline Medicare assignment—*not* legislators who felt that the "end justifies the means." And. . .elections cost money! We hope that you have all sent in your COMPAC contributions.

Those of you who read the June 19th issue of *American Medical News* may have noticed the headline on page 7, "Conn. OKs Bill to Mandate Medicare Assignment." As we all know, this was not the case, as the body of the article revealed. This misinterpretation of the facts was called to the attention of not only the paper's editors, but the delegates at committee meetings.

I would also like to call to your attention a little noticed publication I came away with. It was a document of the American Nursing Association called "New Organizational Models And Financial Arrangements For Nursing Services," published in December 1986. This should be *must* reading for most of you. This document starts out with a concept of "managed-care arrangements," generally linked with revisions in financial arrangements in the health care field, similar to HMOs, IPAs, and PPOs. It is the contention of the ANA that parallel organizations—owned and operated by nurses and their investors—may deliver similar care at more competitive rates.

Six hypothetical models for this delivery are presented. One model would make home visits to "clients" when necessary, and visit "clients" in hospitals and nursing homes when appropriate. This model envisions the admission of patients to hospitals and nursing homes for "nursing therapy" through the nursing service department of those hospitals and nursing homes. Inpatients will receive visits by nurse practitioners who have clinical privileges through the medical staff of the hospital or health care facility. These practitioners could make referrals to other nurse specialists, to *other* health practitioners, and to community agencies as appropriate. It is further proposed that most of them will function as primary nurses and as "case managers" for their "clients"—assessing, arranging, and coordinating care among a variety of health care agencies and community resources. Finally, payment for services could be made directly from the "client" or directly from private and governmental third-party payers whose insurance programs those "clients" have.

A major ANA priority in the 100th Congress in 1987 is the passage of Representative Richard Gephardt's (D-Mo.) legislation known as "Community Nursing And Ambulatory Care Act" (HB 5457). This legislation would allow the creation of community-based nursing organizations to provide Medicare Part B services on a prepaid, capitated basis to enrollees. Registered nurses would supervise all health care services. Although an internal ANA memorandum states that the Congressional Budget Office first estimated that the program would cost $900,000,000, program costs were revised to come out to add only $50,000,000 over a three year period.

The ANA alleges that the political power of the AHA and the AMA—and their state affiliate organizations and medical societies—have been affected by the change in the locus of health care decision-making power *away* from hospitals and physicians and toward payers under "managed care." The ANA further alleges that the AHA's political effectiveness has been hampered by its stance towards Medicare's Prospective Payment System (PPS), and because of that stance, the ANA and its member state associations are in a better position than ever to develop, maintain, and sustain political power bases—nationally and in the states—that would foster an environment more conducive to the passage of legislation supportive of *new* organizational and financial arrangements for the delivery of nursing services.

One final thought. It has come to our attention that as your licenses to practice medicine are coming up for renewal, you will note that your name does not have the letters "M.D." after it—letters that you all have earned over a longer period of education and training than many others may claim. The State has alleged that computers cannot be programmed for those letters; but the letters "Dr." *would* be able to be inserted *before* your name—letters that would not distinguish you from other doctorates in fields such as education, philosophy, osteopathy, chiropracty, and podiatry, among others. Some of you may wish to add the "M.D." under the "corrections" on your form; others may wish to write your legislators. Your State Society will endeavor to work within the system to retain the recognition you so richly deserve and pay for.

James P. Orphanos, M.D.
President

the new DIRECTIONS in medicine

Consider a few features of **The Western Journal of Medicine:**

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

WJ1/87

Enclosed is $________ to cover ________ subscriptions.

Subscription renewal ☐ Regular subscription ☐

Foreign subscription ☐

TO: ____

Street ____

City/State/Zip ____

Specialty ____

Gift Card to read "From____"

The Western Journal of Medicine

Please mail this coupon with enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year
$90 2 years

Reflections on Medicine

Compelling Reality

ROBERT U. MASSEY, M.D.

The other day my 14-year-old granddaughter told me that she was writing the great American novel, that she had already written two chapters.

"Tell me about it."

"It's set in Paris, and it's in the first person. I can only write in the first person. It's in Paris in 1942, and I'm a spy for the French resistance."

"How does the plot go?"

"Well," she said, "I can't know that until I've written more. I'm only beginning the third chapter."

"You mean you can't tell what's in your head until you've written it down?"

"Of course not," she said, without seeming to find anything strange in that at all.

It had taken me 40 years to figure that out, but I had been suspecting for a long time that young people were smarter, more perceptive, than we had been; it may be diet, or, more likely, all the information that impinges upon their senses every day in this more compact world with its television, computers, and jet travel.

Oliver Wendell Holmes had a similar idea, believing that you got at your thoughts by talking about them:

"Don't talk thinking you are going to find out your neighbor, for you won't do it, but talk to find out yourself. There is more of you—and less of you, in spots, very likely—than you know."[1]

Holmes was far from implying that talk necessarily creates thought, or that we are somehow not answerable for what we say; he was a physician and medical school dean, therefore hardly given over to fuzzy thinking! He seemed to anticipate Freud:

"Then again some kinds of thoughts breed in the dark of one's mind like the blind fishes in the Mammoth Cave. We can't see them and they can't see us; but sooner or later the daylight gets in and we find that some cold, fishy little negative has been spawning all over our beliefs,—. And so, you see, you can't tell what the thoughts are that you have got salted down, as one may say, till you run a streak of talk through them,—."[2]

So my granddaughter was right when she said that she could hardly know how her novel would turn out till she had written it down. If she didn't like the way it turned out, could she change it? She wasn't sure, but she thought not. Last month, in his book review of Mary Lake Polan's novel, *Second Seed*, Richard Ratzan took issue with Dr. Polan's remark quoted by the *New Haven Register*: "When you write a novel, if you don't like how it turns out, you can just erase it and start over again. You're not bound by reality. You're not bound by people's real sadness."[3]

In her book, *The Mind of the Maker*, Dorothy L. Sayers, author of the Lord Peter Wimsey detective stories, explores this intricate and intimate relation between the work and its creator. Although she is writing serious theology, she belives that her analogy "is true, not only of all literary art but of all creative art—"

> "Nevertheless, the free will of a genuinely created character has a certain reality, which the writer will defy at his peril. It does sometimes happen that the plot requires from its characters certain behavior, which, when it comes to the point, no ingenuity on the author's part can force them into, except at the cost of destroying them.—
>
> "In such dilemmas, the simplest and worst thing the author can do is to behave like an autocratic deity and compel the characters to do his will whether or not."[4]

All this seems to have to do with respect for the material, the craft, and the integrity of the maker, applying with equal force to "all creative art," including the art of medicine and scientific research.

REFERENCES

1. Holmes OW, *The Poet at the Breakfast Table*, 1880, Houghton, Mifflin and Co, Boston, pp 2-3.
2. *Ibid.*
3. Ratzan RM, *Conn Med* 1987, 51:484-485.
4. Sayers DL, *The Mind of the Maker*, 1941, reprinted 1975, Greenwood Press, Westport CT, pp 67-68.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

“SELLING PRACTICES IS OUR BUSINESS”

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping hundreds of doctors like yourself buy and sell their practices. We guide you through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902

THE WATERBURY HOSPITAL CENTER
PRESENTS A CONFERENCE:

PSYCHIATRY FOR THE NON-PSYCHIATRIST
ANXIETY, DEPRESSION AND GRIEF

WEDNESDAY, SEPTEMBER 30, 1987
8:30 A.M. - 1:30 P.M.

SHERATON HOTEL
WATERBURY, CONNECTICUT

For information call Ms. Tamera Burke, Division of Psychiatry, Waterbury Hospital, 64 Robbins St., Waterbury, CT 06721

Phone (203) 573-6201

NEW YORK FERTILITY RESEARCH FOUNDATION, INC.

For the Investigation of Problems of Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

Call to Contributors

Members of the Connecticut State Medical Society reading papers before other organizations are requested to submit their papers to the JOURNAL for consideration by the Board of Editors for publication. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult INFORMATION FOR AUTHORS. This material may be obtained from the *Journal* office. Adherence to the instructions will prevent delays both in acceptance and in publication.

Please send them to:
Robert U. Massey, M.D., *Editor*
Connecticut Medicine
160 St. Ronan Street
New Haven, Connecticut 06511
(203) 865-0587

From the Executive Director's Office

COUNCIL MEETING

Wednesday, July 1, 1987

Organizational Meeting

The organizational meeting of the Council for 1987-88 was called to order by the President, James P. Orphanos, M.D. Following some opening remarks and the introduction of Council members, elections of a Chairman and Vice-Chairman of the Council for 1987-88 were held. It was VOTED unanimously to elect Guy W. Van Syckle, M.D., Danbury, Chairman, and Mehdi S. Eslami, M.D., Waterbury, Vice-Chairman.

Attendance

Present in addition to the Vice-Chairman, Dr. M.S. Eslami were: Drs. Abbot, Beck, Bonner, Chmieleski, Czarsty, Fox, Kamens, McDonnell, O'Brien, Orphanos, Petrie, Ragusa, Reyelt, Jr., Robbins, Rose, Rubin, Sullivan, Jr., Sweet, Upham, Welch, Wetstone and Zanker.

Also present: Mr. Norbeck, Mrs. Lindquist, Mr. Brunell, Mr. Sullivan, Mr. Staples, Mr. Tomat (FCMA), Mr. Coffey (HCMA), Mr. Freberg (NHCMA) and Mrs. Ganguli (President, Auxiliary).

Absent were: Drs. Ahamed, Ahrens, Bobruff, Dardick, Freedman, Sadowski, Schwartz, Whalen, Jr., Van Syckle, Villa and Zlotsky.

Report of the President

Dr. Orphanos reported that the Voluntary Mandatory Courtesy Card Program enacted by the legislature had been signed by the Governor. He noted that the subject of AIDS was the major issue at the AMA meeting. He further reported that the CMIC transition continued to move along smoothly and that the employees have expressed a desire to continue their employment. It is the opinion of legal counsel that employees should remain employees of CMMI and not CMIC. Renegotiations for re-insurance with Lloyds of London appear to be very favorable and perhaps CMIC will be eligible for five million instead of three million. Rates will be released on August 9.

Report of the Executive Director

Mr. Norbeck discussed mandatory assignment and the courtesy card program and informed the Council that CSMS is waiting for the Department of Aging contract to find out what activities they will undertake. He noted that although the legislation passed was not exactly what was requested, the final outcome was a victory and greater numbers of physicians should now enroll in the program., so that we can meet the criteria set forth in the legislation. It is believed that if the required number of physicians enroll, this will strengthen our position when discussions are held with the legislators early next year and it may be possible to change some of the other prerequisites. He further reported that perhaps the coming public referendum in the State of Washington on November 3 will help determine the fate of mandatory assignment.

Resolution on Physician Involvement in Walk-In Centers

The House of Delegates referred the following resolution on "Physician Involvement in Walk-In Centers," introduced by the New London County Medical Association to the Council for study:

RESOLVED, That the House of Delegates of the Connecticut State Medical Society recommends that physicians be on site at these centers during hours of operation in the interest of the highest possible health care for the citizens of Connecticut who utilize Walk-In Centers.

Following lengthy discussion and consultation with legal counsel, it was VOTED that no action be taken on this resolution. It appeared that there were too many underlying consequences involved in such a resolution.

Report on AMA Convention (Chicago, June 21-25)

The following AMA delegation attended the meeting: Drs. Frank K. Abbot, Edward A. Kamens, Stewart J. Petrie, Jerome K. Freedman, Joseph C. Czarsty, James P. Orphanos and Norman A. Zlotsky. They reported that the AMA discussed the subject of AIDS, physician enhancement, public relations, hospital medical staff section, Medicare, PRO's, foreign medical school graduates and many other subjects. As soon as the full report is received from the AMA, it will be distributed to all members of the Council.

M.D. Health Plan Update

In the absence of William A. Whalen, M.D., Mr. Douglas Hayward, CEO of M.D. Health Plan, gave a progress report. The goal of 4.5 million dollars has been met and it is anticipated that the license to begin operations should be received between August 1-7. They can now inform employers that they will be operational on September 1, and are looking forward to publishing the list of members and commencing operations. Mr. Hayward then proceeded to answer questions from the Council members.

Use of M.D. on Medical License

It was brought to the attention of the Council that certificates being issued for medical license renewal do not have "M.D." after the physicians' names. Following discussion, it was VOTED to communicate to the Department of Licensure and Registration the Society's dissatisfaction with the mode in which the licenses were issued and that

"M.D." should be included after a physician's name. Also, it was not appropriate for the word "employer" to appear on one of the copies of the license.

Liaison Committee with Connecticut Pharmaceutical Association

Dr. Czarsty reported on his meeting with representatives of the Connecticut Pharmaceutical Association concerning the dispensing of prescription drugs by physicians and/or pharmacists. A copy of "Guidelines Concerning Physician Drug Dispensing" prepared by the Hartford County Medical Association was reviewed by the Council and it was VOTED to table a motion to support the HCMA position at this time.

CSMS Group Purchasing Program

A representative of the Connecticut Health Institutional Services, Inc., a subsidiary company of the Connecticut Hospital Association, joined the Council and outlined a statewide physician group purchasing program which would prove beneficial to physicians and CSMS. Following a period of questions, it was VOTED to implement the program outlined by the CHIS representatives, subject to review by legal counsel.

Formation of a Committee on Geriatrics

A communication was received from Andrew D. Weinberg, M.D., Branford, stating that Joseph Misiak, M.D., Windsor, and he would like to form a Committee on Geriatrics within the organizational structure of CSMS and would like to have the Council endorsement. It was VOTED to approve the formation of such a committee and to request Dr. Weinberg to propose names to the Council for appointment. Dr. Weinberg will serve as Chairman.

Date of the Semi-Annual Meeting of the House of Delegates

It was VOTED that the Semi-Annual Meeting of the House of Delegates will be held on Thursday, November 19, 1987 at the Ramada Inn, Meriden.

Dates of Annual Meeting of the House of Delegates and Scientific Program

It was VOTED that the 196th Annual Meeting of CSMS will be held on May 4, 5, 1987 at the Ramada Inn, Meriden.

Committee on Program of the Scientific Assembly

Following discussion concerning attendance at the scientific program, it was VOTED to refer to the subject committee for consideration and recommendation as to whether or not the scientific program should be continued.

Committee on Public Health—Agent Orange

On recommendation of the Committee on Public Health, it was VOTED to approve the following recommendation:

> "That CSMS be included as a referral agency in the manual of Agent Orange being published by the Vietnam Veteran's Herbicide Commission."

Life Members

It was VOTED to receive as information the following list of Life Members effective 1/1/87: Ellen F. Birchall, Ledyard, Sanford W. Harrey, Higganum, John E. Keet, Charlestown, RI, Nicholas Preston, Watertown, James N. Worcester, Stonington, Fowler F. White, Litchfield.

Liaison Activities with Connecticut State Bar Association

Dr. Stewart Petrie submitted a report on the activities between the New Haven County Medical Association with the New Haven County and State Bar Associations which stated that a final draft of the principles of cooperation with medical legal matters was agreed upon. Following discussion, it was VOTED that the Council request from Dr. Philip Shelton, Chairman of the CSMS Liaison Committee with the Connecticut Bar Association, a progress report on the development of the principles of cooperation with the Connecticut Bar Association.

Medical Courtesy Card Program

Dr. George Bonner read a recommendation from the Board of Governors of New Haven County Medical Association requesting CSMS to form a committee to meet with Commissioner Mary Ellen Klinck of the Department of Aging in an effort to implement the Medical Courtesy Card program. The Board of Governors offered the assistance of the New Haven County Medical Association in the implementation of the program. Mr. Norbeck informed Dr. Bonner that negotiations were already underway with the Department of Aging and that NHCMA would be kept informed of the developments. No action was taken on the recommendation.

Medicare

Dr. Howard Wetstone reported on a study made of the Medicare database and commented on the discrepancies in the database in that categories of specialties were inaccurate. Following discussion, it was VOTED to approve of a resolution submitted by the Hartford County Medical Association which follows:

> "That CSMS work with Travelers/Medicare to develop a logical, equitable subdivision of specialties for determining prevailing fee structure."

N.B.: *The foregoing is a summary of the proceedings and actions of the Council on July 1, 1987. Detailed minutes of the meetings are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.*

NEW MEMBERS

Members of the Connecticut State Medical Society join in welcoming these new members into a progressive state medical organization. CSMS is dedicated to promoting the science and art of medicine, the protection of the public health, and the betterment of the medical profession. Each new member is encouraged to join with other CSMS members at both the county and state levels in achieving these goals.

NEW HAVEN COUNTY

Richard H. Anderson, M.D., Wallingford
Eric H. Berbger, M.D., New Haven
James J. Ciarcia, M.D., New Haven
Jane R. Clark, M.D., Guilford
Joseph D. De Mayo, M.D., Waterbury
Janet B. Dickinson, M.D., Meriden
Roslyn P. Einbinder, M.D., New Haven
Ritz M. Fauliso, M.D., New Haven
Benedict L. Fernando, M.D., West Haven
Lawrence P. Fielding, M.D., Waterbury
Mary A. Gatter, M.D., Waterbury
H. Compton Gift, M.D., Waterbury
Richard P. Giosa, M.D., Meriden
Robert M. Gossart, M.D., New Haven
Ronald H. Horokawa, M.D., New Haven
Ferrin C. Holmes, M.D., Branford
Jeffrey B. Hoogstra, M.D., West Haven
Robert N. Hyde, III, M.D., Seymour
Alan S. Kliger, M.D., New Haven
Alexandra Kushnir, M.D., Waterbury
Laurence N. Lederman, M.D., Meriden
James R. Lyons, M.D., New Haven
Ronald S. Paret, M.D., Waterbury
Robert J. Richards, M.D., Wallingford
A. Azia Richi, M.D., Waterbury
Marie F. Robert, M.D., Orange
Kert D. Sabbath, M.D., Waterbury
David M. Sack, M.D., Cheshire
James Sarfeh, M.D., Cheshire
Yvonne D. Smith, M.D., Waterbury
Ruth Steinberg, M.D., New Haven
David M. Van Ess, M.D., New Haven
Steven S. Winfield, M.D., Meriden
Joseph L. Woolston, M.D., Madison
Peter Zorach, M.D., New Haven

HARTFORD COUNTY

Editha Bielitz, M.D., Hartford
Lee R. Brettman, M.D., Hartford
Craig C. Bonanni, M.D., Hartford
Richard A. Bugliari, M.D., Hartford
George E. Castro, M.D., Hartford
John R. Caldarelli, M.D., Hartford
Philip A. Carnevale, M.D., Manchester
Richard J. Castriotta, M.D., Hartford
Michael M. Cebrik, M.D., Hartford
Mary G.S. Cheeran, M.D., Hartford
Robert P. Conlen, M.D., Hartford
William J. Currao, M.D., New Britain
Susan C. Daly, M.D., Hartford
John M. DaSilva, M.D., Hartford
Deborah A. Dehertogh, M.D., Hartford
Anna G. Engel, M.D., Hartford
Lawrence J. Fortier, M.D., Hartford
Joseph G. Garner, M.D., New Britain
Mark J. Gerber, M.D., Hartford
Joseph A. Harrison, M.D., New Brtain
Alan M. Harvey, M.D., Suffield
David D. Henderson, M.D., Plainfield
Michael J. Jimenez, M.D., West Hartford
Jonathan E. Kass, M.D., Hartford
Daniel Kveselis, M.D., Hartford
Sharron L. Laplante, M.D., Bristol
Elcon D. Levinson, M.D., Avon
Janice L. Lee, M.D., Hartford
Bruce H. Levy, M.D., West Hartford
Michael J. Liftman, M.D., Burlington
Nicholas Mikula, Jr., M.D., New Britain
Paul C. Moulinie, M.D., Hartford
Jeffrey D. Neill, M.D., New Britain
Jeffrey A. Orell, M.D., Hartford
Gerald I. Rabinovitch, M.D., Hartford
Arthur L. Riba, M.D., Hartford
Howard A. Selinger, M.D., Bristol
Mark Sperber, M.D., Avon
Richard A. Stevens, M.D., Enfield
Anthony E. Trigenis, M.D., South Windsor
Nathan M. Szajnberg, M.D., Farmington
Stanley D. Walker, M.D., Hartford
Michael L. Whaley, M.D., New Haven
Susan Wiskowski, M.D., Hartford
Rafael S. Wurzel, M.D., New Britain

FAIRFIELD COUNTY

Mark D. Anderson, M.D., Greenwich
Clifford J. Appel, M.D., Danbury
Bruce R. Baron, M.D., Stamford
Maryanne F. Bartoszek, M.D., Norwalk
Dennis S. Buonafede, M.D., Bridgeport
Michael J. Craig, M.D., Danbury
Cela Doppelt, M.D., Norwalk
David B. Eagle, M.D., Bridgeport

FAIRFEILD COUNTY (continued)

Robert E. Feinstein, M.D., Norwalk
Irwin D. Feintzeig, M.D., Bridgeport
Alexis E. Finlay, M.D., Greenwich
William B. Fitzgerald, M.D., Bridgeport
Howard B. Garfinkel, M.D., Danbury
Murray S. Hamada, M.D., Westport
John Hammel, M.D., Bridgeport
Brian B. Hennessy, M.D., Stamford
Michael H. Huberman, M.D., Westport
Diane P. Indyk, M.D., Stamford
Barbara L. Joseph, M.D., Norwalk
Matthew J. Klein, M.D., Redding
Harriet O. Kotsoris, M.D., Stamford
Seth P. Lerner, M.D., Trumbull
Richard J. Lisi, M.D., Norwalk
Barry C. McNeil, M.D., Bridgeport
Jeffrey S. Metzger, M.D., Ridgefield
Michael P. Moore, M.D., Darien
Nirmala L. Monteiro, M.D., Fairfield
Amen Ness, M.D., Greenwich
Michael E. Opalak, M.D., Bridgeport
Albert A. Politis, M.D., Fairfield
Paul R. Ramirez, M.D., Bridgeport
Harvey Seidenstein, M.D., Greenwich
Bruce Shapiro, M.D., Stamford
Daniel G. Sica, M.D., Bridgeport
Robban A. Sica, M.D., Bridgeport
Tadeusz A. Skowron, M.D., Fairfield
Stephen J. Tenenbaum, M.D., Danbury
Allen I. Troy, M.D., Stamford
Jay H. Ugol, M.D., Westport
Charles B. Watson, M.D., Easton
Benjamin Weisman, M.D., Bridgeport
Robert L. Wenick, M.D., Bethel
Marvin Witt, III, M.D., Milford
Isidore Yasser, M.D., Fairfield

NEW LONDON COUNTY

Anthony G. Alessi, M.D., Norwich
Henry S. Amdur, M.D., New London
Peter T. Auerbach, M.D., Groton
Steven Carlow, M.D., Mystic
Bernard J. Ferguson, M.D., Groton
Bernard Giserman, M.D., New London
Daniel T. Glenney, M.D., Norwich
Steven P. Johnson, M.D., New London
Marinus Krijger, M.D., New London
Mangipudi V. Murthy, M.D., Norwich
Suman A. Patel, M.D., Norwich
Hyim Shafner, M.D., Norwich
Jeffrey A. Simpson, M.D., New London
Linda D. Wolf, M.D., Stonington

LITCHFIELD COUNTY

Barbara B. Heublein, M.D., Sharon
Howard M. Lifland, M.D., Torrington
Charles L.H. Staub, M.D., Washington
John R. Sussman, M.D., New Milford

MIDDLESEX COUNTY

Fred S. Siegel, M.D., Middletown
Martin J. White, M.D., Essex
Kristen A. Zarfos, M.D., Essex

TOLLAND COUNTY

Tamil R. Anban, M.D., Rockville
Thomas R. Bladek, M.D., Rockville
Carl Koplin, M.D., Rockville
Richard E. Schluessel, M.D., Rockville

WINDHAM COUNTY

Alan M. Cementina, M.D., Storrs
Arvind A. D'Cruz, M.D., Putnam
Irwin I. Ehrenreich, M.D., Danielson
Alan Glassmann, M.D., Putnam
Adriaan R.J. Herklots, II, M.D., Danielson
Wylie A. Slagel, M.D., Willimantic
Heather E. Sullivan, M.D., Putnam
Gerald B. Sullivan, M.D., Putnam
Alfred E. Stillman, M.D., Putnam

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

(If no name is listed, contact the Physician Placement Service for more details.)

AMBULATORY CARE

Full or part time position available for physician in the Colchester Immediate Care Medical Center opening mid-April. Salary and benefits negotiable. Please send C.V. to: Dr. Robert Moskowitz, Stonemill Road, Mansfield, CT 06250 or phone (203) 429-6109.

Full time position available for an ambulatory care physician to work in an established walk-in center in the greater Bridgeport area. Please send curriculum vitae to Immediate Health Care, 15 Armstrong Rd., Shelton, CT 06484. Attn: Darlene.

New London—Immediate full or part-time position available to work in an established Ambulatory Care Center. Excellent salary and benefits. Send C.V. to Charles M. Parrott, M.D., Nameaug Walk-In Medical Center, 21 Montauk Ave., New London, CT 06320.

ANESTHESIOLOGY

Full-time position for a BE/BC anesthesiologist to work at a free-standing ambulatory surgical center presently performing about 2,900 anesthetics per year. Anesthesia provided by fee-for-service; physicians only professional corporation. Salary and benefits negotiable. Send CV to John C. Daniels, M.D., Danbury Surgical Center, 73 Sandpit Rd., Suite 101, Danbury, CT 06810. Phone (203) 743-2400.

FAMILY PRACTICE

Family practice physician or internist urgently needed for community health center in Hartford. Regular hours, no weekends, malpractice paid. Will consider full or part time. Contact Kurt Myers, M.D., at 236-0857 for more information. E.O.E.

For Sale: Well established Family Practice. Excellent location and opportunity in central Connecticut. Send replies to CSMS, c/o FP/JL.

Expanding family practice in Western Connecticut seeking BC/BE family practitioners to join busy four physician group. Highly desirable area. No obstetrics. Send CV to Brookfield Health Associates, P.C., 940 Federal Rd., Brookfield, CT 06804.

FAMILY PRACTICE/INTERNAL MEDICINE

Family practitioner or internist. Board certified or eligible. Position available in 600-bed public psychiatric hospital and psychosocial rehabilitation facility and primarily involves outpatient level of medical treatment for psychiatric patients, as well as medical coverage of employees health clinic. Candidates must possess or be eligible for Connecticut license. Salary $52,560-$68,870 for 35 hour work week with no night call requirement. Benefits include comprehensive medical dental plan, generous holiday, vacation, sick and paid personal leave time, retirement plan and possible staff housing. For further information contact Lawrence Carver, M.D., Assistant Superintendent, Clinical, Norwich Hospital, P.O. Box 508, Norwich, CT 06360. (203) 823-5264. EOE/AA.

INSTITUTIONAL MEDICINE

Part-time physician needed for *sexually transmitted clinic* at the New Haven Health Department, One State Street. Send resume to Health Director, New Haven Health Department, One State St., New Haven, CT 06511.

INTERNAL MEDICINE

Internal Medicine group looking for associate to join our practice located in New Haven area. Please send C.V. to Dr. William Schreiber, 2416 Whitney Ave., Hamden, CT 06518.

Board Certified Internal Medicine or subspecialty for busy coastal Internal Medicine group. Forward C.V. to William A. Colom, M.D., 447 Montauk Ave., New London, CT 06320.

The Northeast Permanente Medical Group in the greater Hartford area of Connecticut is seeking B/C or B/E Primary Care Internists for 1987. The Medical Group is the exclusive provider of health care services for the Kaiser Foundation Health Plan of CT. This opportunity offers membership in a 20 physician, multispecialty professional corporation; competitive salary and benefit programs; medical offices throughout the greater Hartford area and much more. University-hospital training or its equivalent is desirable. Address inquiries and resumes to: Alan Greenglass, M.D., Chief, Department of Internal Medicine, c/o Physician Placement Dept., Northeast Permanente Medical Group, P.C., Suite 401, 60 Washington St., Hartford, CT 06106.

Opportunity to take over active practice in suburban Hartford—served by all Hartford hospitals—planning retirement in one to three years. Please write CSMS, c/o IM/HZ.

Cardiology. BC/BE Cardiologist needed for community hospital cardiology private practice. Interest or experience in behavioral cardiology desirable. Please forward CV to Stephen T. Sinatra, M.D., F.A.C.C., P.C., 483 West Middle Turnpike, Manchester, CT 06040.

For Sale. Internal Medicine practice. Established 21 years. Southern Connecticut. Excellent location near Yale-New Haven and New York City. Call (203) 795-9419, evenings. Available July 1987.

INTERNAL MEDICINE/GERIATRICS

We are seeking a highly qualified, career-oriented individual to join our full-time staff of internists at a 650-resident nationally recognized geriatric center. We offer a challenging environment in which to practice. This includes acute as well as long-term care. Consultants in most specialties are also available on staff. There is a very reasonable working schedule. Salary is competitive and benefits are excellent, including annual paid educational leave plus vacation. Admitting privileges are available at a nearby medical center. We are located in central Connecticut. If interested, please send CV and three letters of reference to Dr. Erlinda Rauch, Medical Director, Masonic Home and Hospital, P.O. Box 70, Wallingford, CT 06492. EEO.

MISCELLANEOUS

Seeking BC physicians in Hartford, CT area, who are particularly proficient in patient history and physical examinations. Medical Assessment Programs provides comprehensive Independent Medical Examinations for Workers' Compensation, Liability and Bodily Injury patients. Openings for part-time and full-time physicians. Monday through Friday, 9 to 5. No weekends or evenings. Excellent benefits and salary. For additional information, call Dr. Smith (617) 449-8201.

Physician's office space available, to share with internist in downtown New Haven. Ideal location; reasonable rent. Near both Yale New Haven Hospital and The Hospital of St. Raphael. Free patient parking. Available immediately. Call 777-2189.

OBSTETRICS/GYNECOLOGY

Excellent opportunity for female/male, B/C, B/E, Obstetrician/Gynecologists. Well established progressive practice needs a new partner to replace retiring physician. We do in office ultrasounds, colposcopy and fetal monitoring. Located across from hospital. Send CV to Tim Sharpe, M.D., 284 Broad St., Milford, CT 06460.

ORTHOPEDICS

Shared office space available for an Orthopedist. Prime, easily reached location with free parking, in New Haven. X-Ray, Cybex II and other diagnostic equipment included for use. Please contact, Giovanni Raccugli, M.D., 437 Orange St., New Haven, CT 06511. (203) 624-5706.

ORTHOPEDIC SURGERY

Expanding North Central Connecticut health care system (Acute Care Community Hospital, Free-standing Surgery Center, Nursing Home, Medical Education and Wellness Center) seeks BC/BE Orthopedic Surgeons to establish community-based practice in a service area of 100,000. Exceptional first year income guaranteed and office support systems for establishing practices provided. Strong partnership possibilities as well as academic affiliation with University teaching hospitals. Send replies to CSMS, c/o ORTH/AAL.

OTOLARYNGOLOGY

Seeking well-qualified otolaryngologist for long-established modern office in large Central Connecticut city. Fully-equipped office including head X-Ray, soundproof hearing booth, microscope and allergy setup. Large patient files. Write Lewis Chester, M.D., Beechtree Lane, West Hartford, CT 06107. (203) 561-1783.

Associate needed for general E.N.T. practice in Northwestern Connecticut. Prefer board certified and Connecticut licensed. Send resume to CSMS OTO/PA.

PEDIATRICS

Our 102-bed community hospital is seeking a BE/BC U.S. trained pediatrician (male/female) to establish practice within our community. Hospital offers an attractive incentive program and excellent facilities. Position offers professional coverage provided by three existing independent pediatricians as well as additional physician specialties. Community of 50,000 located near major metropolitan area. Please forward letter of introduction and CV to: Robert C. Boardman, Executive Director, Rockville General Hospital, 31 Union St., Rockville, CT 06066. (203) 872-0501.

An opening for a part time associate, for up to 20 hours a week, is available now in a two person private pediatric practice. Office is located five miles from the Yale-New Haven Medical Center, our chief hospital affiliation. Earnings will be 50% of gross income. If interested call (203) 248-4846 any evening after 7 p.m.

PRIMARY CARE

Full time physicians for walk-in medical services. West Haven and Milford. Write, CSMS, c/o PC/BY.

Internist. The Northeast Permanente Medical Group in the greater Hartford area of Connecticut is seeking BC/BE primary care internists for 1987. The Medical Group is the exclusive provider of health care services for the Kaiser Foundation Health Plan of CT. This attractive opportunity offers membership in a multispecialty professional corporation, with enrollment of approximately 30,000 members with competitive salary and benefit programs. University-hospital training or its equivalent is desirable. Address inquiries and resumes to: Alan Greenglass, M.D., Chief, Department of Internal Medicine, c/o Physician Placement Dept., Northeast Permanente Medical Group, P.C., 60 Washington St., Suite 401, Hartford, CT 06106.

RADIOLOGY

General radiologist with training in all phases of diagnosic and invasive radiology is being recruited by a six-man group of radiologists in Northeastern Connecticut. Practice includes three offices and a small progressive hospital. The hospital currently offers a full range of services including nuclear medicine, ultrasound and CT unit, new one-day surgical center recently completed, also regional dialysis center and busy outpatient department. Part-time may be considered for this position. Send C.V. to Jonathan Berger, M.D., 142 Echo Drive, Vernon, CT 06066.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

INTERNAL MEDICINE

July '87. Licensed in Connecticut. Age 66. Nat'l bds. AB cert. MD, Georgetown University School of Medicine; Int. and Res., Boston City Hospital; Fellowship, Peter Bent Brigham (cardiology). Prefers institutional or insurance consulting type practice. Write CSMS, c/o ML/IM.

Gastroenterology. July '88. Nat'l bds. AB cert. MD, New York Medical College; Int. and Res., St. Vincent's Hospital, New York, NY; Fellowship, Albany Medical Center, Albany, NY. Prefers group, associate or institutional type practice. Write, Douglas T. Miller, M.D., 5 York Rd., Glenmont, NY 12077.

OBSTETRICS & GYNECOLOGY

Immediately available. Age 58. Licensed in Connecticut. AB elig. MD, University of La Plata, Argentina; Int. and Res., St. John's Episcopal, Brooklyn, NY. Prefers Fairfield County; part time only. Fluent in Spanish, Italian and English. Write, Dora Perino, M.D., 223 Misty Wood Lane, Fairfield, CT 06430.

PEDIATRICS

Allergy and Immunology. July '88. Flex. AB elig. MD and Int., Ain Shams University Hospitals, Cairo, Egypt; Res., Rush Medical College, Chicago, IL; Fellowship, University of Texas Health Science Center, San Antonio, TX. Prefers group or associate type practice. Write, Medhat M. Ragab, M.D., 5903 Danny Kaye, Apt. 908, San Antonio, TX 78240.

Sequential Replacement of the Thoracic Aorta

WILLIAM SARDELLA, M.D., RICHARD GROTZ, M.D. and
PHILIP ALLMENDINGER, M.D.

Introduction

The surgical approach to thoracic aortic aneurysm is inherently complex. Vital organ protection, particularly the brain, is mandatory and in our practice has been facilitated by the use of hypothermic circulatory arrest.[1-3]

We recently reported our experience with a series of patients who underwent hypothermic circulatory arrest during the surgical reconstruction of the ascending aorta and transverse aortic arch.[4] There was no mortality and no significant morbidity associated with this series. The present case is exceptional in that it involves the surgical replacement of the entire thoracic aorta in three separate operations over a period of five years. Two of those operations involved hypothermic circulatory arrest.

Case Report

A 24-year-old otherwise healthy white male had presented to the Emergency Room complaining of substernal chest pain, dysphagia, and several bouts of syncope over a four day period. The family history revealed that a younger brother had died from a ruptured thoracic aorta at the age of 16. Physical examination on admission revealed a harsh systolic sound over the sternum characteristic of a friction rub. No stigmata of Marfan's Syndrome were noted. The electrocardiogram was within normal limits. A chest x-ray revealed a slight increase in the width of the mediastinum. An aortogram revealed aortic dissection extending from just above the aortic valve to a re-entry site above the renal arteries.

The patient underwent replacement of the ascending aorta with a dacron sleeve graft reapproximating the dissection at the proximal third of the transverse aortic arch. The procedure was complicated by intra-operative rupture of the aneurysm and inability to adequately cross-clamp the aorta due to friability of the tissue. The core temperature of the patient was reduced to approximately 19°C. Cardiopulmonary bypass was discontinued, and the distal anastomosis involving the proximal transverse arch was accomplished without placement of an aortic clamp. Cardiopulmonary bypass was reinstituted while the proximal anastomosis was completed. The total hypothermic circulatory arrest time was 28 minutes. The postoperative course was uncomplicated, and he was discharged home sixteen days postoperatively on propranolol. Examination of the resected aortic tissue revealed cystic medial necrosis. An aortogram done postoperatively revealed persistence of a false lumen in the descending thoracic aorta. Elective reconstruction was to be done six months postoperatively. He returned to the hospital three months postoperatively with a complaint of severe interscapular pain. A repeat aortogram revealed a 5 mm. increase in the diamater of the aorta and persistence of the false lumen. The great vessels were not involved. The descending thoracic aorta was replaced using partial cardiopulmonary bypass without operative complication. Postoperatively he experienced an anterior spinal syndrome with motor dysfunction of the lower extremities. He was discharged home on propranolol. Physical rehabilitation restored his ability to walk with the use of a cane. He resumed normal activities and was examined every six months. Five years postoperatively he returned to the hospital with a two week history of dysphagia and syncope. Aortogram revealed extensive dilatation of the transverse aortic arch with involvement of the proximal great vessels. Replacement of the transverse aortic arch was accomplished by reperfusing the great vessels with a bifurcation graft. The body of the graft was anastomosed to the previous ascending aortic graft and the distal ends to the innominate and left carotid arteries. The left subclavian artery was anastomosed end-to-side to the left carotid artery (see Figure 1). Hypothermic circulatory arrest was once again induced at 19°C. The graft was then anastomosed to the descending thoracic graft distally and to the ascending aortic graft proximally with an arrest time of thirty minutes. He was discharged home eighteen days postoperatively on propanolol. At the present time he has a short segment of intra-abdominal aorta above the renal arteries with a persistent double lumen. This is followed with ultrasound and periodic examination.

Comment

Surgical treatment of aneurysmal disease of the thoracic aorta is one of the most demanding technical challenges for the cardiovascular surgeon. Progress in the repair of

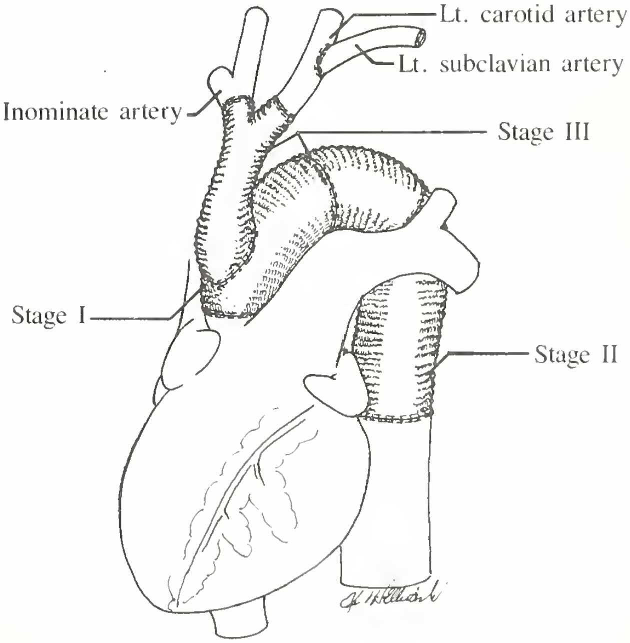


Figure 1

WILLIAM SARDELLA, M.D., Senior Surgical Resident, Hartford Hospital; RICHARD GROTZ, M.D., Junior Surgical Resident, Hartford Hospital; PHILIP ALLMENDINGER, M.D., Senior Attending Staff, Hartford Hospital; Assistant Clinical Professor of Surgery, University of Connecticut School of Medicine, Farmington.

Reprint requests: 85 Seymour St., Hartford, CT 06106 (Dr. Allmendinger).

these lesions has been inhibited by the lack of adequate organ preservation. Reliably safe interruption of the cerebral circulation has evolved slowly over a sixteen year period since the initial successful replacement of the aortic arch by DeBakey in 1957.[5] Hypothermic circulatory arrest has greatly simplified the surgical approach to aortic arch aneurysms and has proven to be a predictably safe technique for organ preservation. The replacement of the thoracic aorta in three separate stages is unusual and the use of hypothermic circulatory arrest on two separate occasions in the same patient has not been reported.

REFERENCES

1. Connolly JE, Roy A, Guernsey JM, Stemmer EA: Bloodless Surgery by Means of Profound Hypothermia and Circulatory Arrest. Am Surg 1965, 162:724.
2. Cooley DA, Ott DA, Frazier OH, Walker WE: Surgical Treatment of Aneurysms of the Transverse Aortic Arch: Experience with 25 Patients Using Hypothermic Techniques. Am Thor Surg 1981, 32:260.
3. Ergin MA, O'Connor JO, Guinto R, Griepp RB: Experience with Profound Hypothermia and Circulatory Arrest in the Treatment of Aneurysms of the Aortic Arch. Aortic Arch Replacement for Acute Arch Dissections. J Thor Cardiovasc Surg 1982, 84:649.
4. Crepps, Allmendinger, et al. Ann Thor Surg June 1987, 43:644-647.
5. DeBakey ME, Crawford ES, Cooley DA, Morris GC: Successful Resection of Fusiform Aneurysm of the Aortic Arch with Replacement by Hemograft. Surg Gynecol. Obstet 1957, 105:657.

First Dollar Coverage is Linked to Higher Treatment Costs

Persons with health insurance that covers initial physician office visits have treatment costs up to 50 percent higher than patients with the same illnesses who must pay a deductible or who have no health insurance. That is because patients with "first dollar" coverage tend to see doctors more often and their visits cost more. For example, patients with first dollar coverage treated for menstrual disorders are likely to make a second visit to the doctor, while hypertensive patients with first dollar coverage see their doctor 11 percent more often than patients with the same illness who pay a deductible or who have no insurance. First dollar coverage is also associated with an eight percent increase in the average cost of a hypertension visit, according to a new study from the National Center for Health Services Research and Health Care Technology Assessment (NCHSR). In terms of how other nonmedical factors affect ambulatory treatment costs, results showed that affluent patients pay more for care of serious conditions than less affluent patients even though they visit the doctor roughly the same number of times. This suggests that higher income patients may receive more costly and intensive care on each visit. The analysis also found that patients in market areas with high physician-to-population ratios average slightly higher office treatment costs than patients with the same conditions in areas with fewer doctors. Although doctor-patient ratios do not appear to influence hospital admissions, hospital bed supply apparently does. Study results showed that admission rates are three percent higher for patients with certain conditions in areas where the per capita supply of beds increased by ten percent. But this increase is matched by a three percent reduction in outpatient hospital utilization, suggesting the substitution of inpatient and ambulatory services for each other in the treatment process. The research was based on data from the 1977 National Medical Care Expenditure Survey of 14,000 sample households across the country. It is the first study to analyze variations in health care use and costs according to illness categories using data from a national health survey. The study was conducted by Pamela Farley, Ph.D., of NCHSR's Division of Intramural Research. Details are in "Hospital and Ambulatory Services for Selected Illnesses," published in *Health Services Research,* December 1986.

— National Center for Health Services Research and Health Care Technology Assessment, Rockville, MD., August, 1987.

Typhlitis in Acute Leukemia

JAMES SPELLMAN, M.D., J. FORBES ROGERS, M.D. and KIRK K. KAZARIAN, M.D.

ABSTRACT–Acute inflammation of the cecum (typhlitis) has been recognized as a dreaded complication in patients receiving therapy for leukemia and lymphomas. Formerly, the literature has emphasized conservative management, with most cases being diagnosed at postmortem examination. Recently, more aggressive surgical intervention coupled with earlier diagnosis have resulted in increased survival. A patient with undiagnosed acute myelomonocytic leukemia presented as an acute surgical abdomen. The diagnosis of leukemia was made just prior to surgical management. A review of the pre-operative preparation and post-operative care and the operative, pathologic, and hematologic findings, and the therapeutic regime are discussed. The successful outcome of this case suggests that with proper preparation, surgical intervention may be safely undertaken in these critically ill patients generally regarded as too sick to be operated upon.

Acute inflammation of the cecum (typhlitis) has been recognized as a dreaded complication in patients treated for leukemia and lymphomas. Most cases have been reported postmortem with the incidence being 10-20%.[1] Recently, more cases are being diagnosed ante-mortem and treatment has usually centered around conservative management. We present here a case of myelomonocytic leukemia presenting as an acute abdomen which required early surgical management. Surgical intervention may be safely undertaken with intensive preoperative support including fluid therapy, platelet infusions, and blood replacement for this life-threatening disease.

Case Report

A 34-year-old female, having recently been treated for sinusitis with steroids and antibiotics, presented to the emergency room with an abrupt onset of abdominal pain, fever, chills, and nausea. On admission, she was noted to have a tachycardia to 128 and a rectal temperature of 105.7 F. Her initial white count was 28,000 with 25% lymphocytes, 31% monocytes, 7% polymorphonuclear cells, and 37% large unstained cells. Her hemoglobin was 6.4 g/dL and her hematocrit 19.7%. The platelet count was noted to be 88,000/μL. Repeat blood count four hours later showed the white count to be 86,000 with 7% monocytes, 48% atypical myelomonocytes, 1% polymorphonuclear cells, 1 band form, 11% lymphocytes; and 32% blast forms. The platelet count had dropped to 77,000/μL, and her hemoglobin had dropped to 5.4 g/dL.

When initially examined, her abdomen was noted to be rigid with maximal tenderness in the lower abdomen. Bowel sounds were depressed, and guarding and rebound were present. Upon pelvic examination she was found to have a tender right adnexal mass. An intrauterine device was removed.

A bone marrow aspirate was consistent with acute myelomonocytic leukemia. A pelvic ultrasound demonstrated fluid in the cul-de-sac, and confirmed the presence of a solid mass in the right lower quadrant. She had an elevated prothrombin and partial thromboplastin time. The total protein, serum calcium, and serum potassium were 5.7 mg/dL, 6.9 mg/dL and 2.7 mEq/L respectively.

Leukocyte-poor blood, crystalloid, fresh frozen plasma, and platelets were transfused along with antibiotics consisting of ticarcillin, gentamicin and clindamycin just prior to operation. Laporatomy revealed bloody peritoneal fluid and an acutely gangrenous cecum. (Figure 1) The right fallopian tube was also part of the phlegmon present. A right colectomy with primary anastomosis was performed without complication. The right tube and ovary were left in place. Microscopic sections of the ileum showed diffuse monocytic cell infiltrations and an associated serositis and edema with margination of these cells around and within the blood vessels resulting in diffuse hemorrhage and necrosis of the colon, cecum, and appendix. (Figure 2) The pathologic diagnosis included acute myelomonocytic leukemia, focal monocytic sarcoma, and acute typhlitis.

Postoperatively, the patient's antibiotics were changed to mezlocillin and metronidazole. She gradually improved, and by her fourth postoperative day she was tolerating p.o. fluids. Repeat leukocyte counts returned to normal after a postoperative drop to 2700 on the fourth postoperative day. Her platelet count was low at 41,000/μL, and the prothrombin and thromboplastin times remained moderately elevated. She was discharged on the seventh postoperative day and scheduled for follow-up chemotherapy.

Discussion

The term typhlitis of pre-appendectomy days was reintroduced[2,3] in 1970 to describe a necrotizing enteropathy in children undergoing chemotherapy for leukemia. It has been generally a fatal complication in patients undergoing treatment for hematologic malignancies.[2] Typhlitis is also known to be a serious complication in patients with aplastic anemia.[3] The exact incidence of this disease is unknown but it is not infrequent. Until about ten years ago, typhlitis was virtually a post-mortem diagnosis, with the incidence reported at 10%.[3] Pokorny, et al, reported an ante-mortem case of typhlitis in a patient with aplastic anemia in 1980.[4] Varki, and associates, reported one of the earliest surgical successes of typhlitis in a patient with acute lymphocytic leukemia in 1979.[2]

JAMES SPELLMAN, M.D., Surgical Resident; J. FORBES ROGERS, M.D., Associate Surgeon-in-Chief; KIRK. K. KAZARIAN, M.D., Surgeon-in-Chief; all of the Department of Surgery, The Stamford Hospital, Stamford, CT.

Reprint Requests: Department of Surgery, The Stamford Hospital, P.O. Box 9317, Stamford, CT 06904, (Dr. Kazarian).

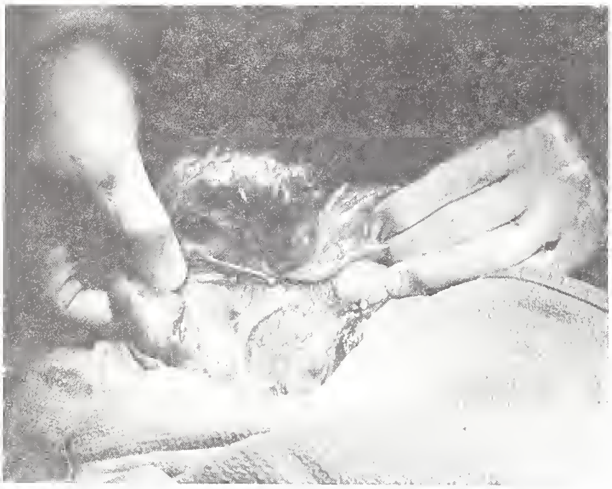


Figure 1

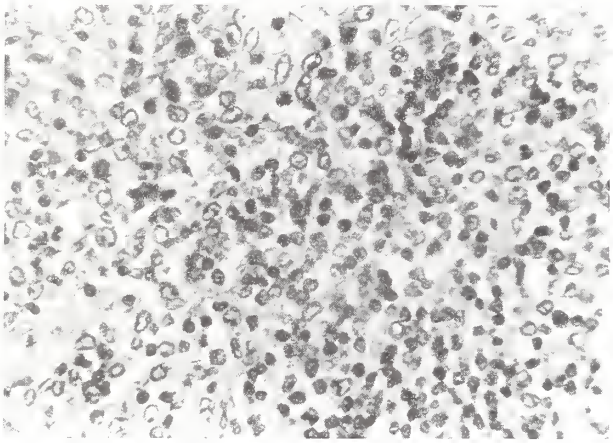


Figure 2

With the advent of modern chemotherapy, patients with leukemia and lymphomas are living longer and the number and severity of complications which eventually lead to surgery is increasing.[5-7] The incidence of complications requiring surgery that arise during chemotherapy has been reported at 3-9%[8] and may be increasing in number.

Typhlitis is usually seen in patients undergoing induction therapy for leukemia or in those patients in relapse.[6,9,10] The diagnosis may be suspected in any leukemic patient having undergone therapy for as little as seven days, or in any neutropenic patient having been treated with antibiotics for recurrent septic episodes in whom the source of sepsis is unidentified.[4,11-13]

Patients with leukemias and lymphomas have often been found to have gastrointestinal lesions at autopsy which may account for the source of sepsis in these patients.[4] These patients with abdominal complaints almost invariably present with fever and abdominal pain which develops seven to ten days from the onset of therapy.[2,6] Nausea, vomiting, and diarrhea, which may be bloody, are usually part of the constellation of signs and symptoms. The abdominal pain may become localized to the right lower quadrant and a mass may be palpable. An associated neutropenia, anemia, and a depressed platelet count may be present; however, these may be related to the side-effects of the chemotherapy. Hypoproteinemia, hypocalcemia, and hypokalemia may also be present.

Plain abdominal films may be normal. However, one may see an absence of gas in the right lower quadrant, loss of the right psoas shadow, varying degrees of small bowel obstruction, and a mass in the right lower quadrant taken to be a fluid filled, atonic cecum.[3,11-15] A careful barium enema may also be useful in diagnosis; however, the risk of perforation during this radiologic procedure must be taken into account. The cecum may appear spastic or distorted[4] and the ileum may appear normal but may be displaced away from the cecum by a mass.[11] Meyerovitz and Fellows reported on the use of arteriography in three children with typhlitis who had significant gastrointestinal bleeding.[16] At arteriography, these patients demonstrated hypervascularity and staining of the mucosal folds of the cecum, dilated branches of the ileocolic vessels, and arterio-venous shunting.

The reason for the cecum to develop this type of inflammation is unknown. Contributing factors have been identified in the etiology of typhlitis and include: neutropenia, chemotherapy, steroids, antibiotics, and infection. A combination of any of these may play a role in the development of typhlitis. The exact sequence of events is uncertain, but the toxic effects of chemotherapy as a cause of necrosis of the leukemic infiltrates in the cecum seems to be well established. Chemotherapy and steroids may lead to immunosuppression, and the breakdown of mucosal integrity develops allowing the entrance of bacteria.[2,3,15]

Antibiotics may allow for certain bacteria to flourish. Thus the combination of necrotic leukemic infiltrates, immunosuppression, and the presence of altered bacterial flora may be the pattern for the development of typhlitis. The cecum has been noted to be a less dynamic area of the gastrointestinal tract which may contribute to the development of this type of necrotizing inflammation.[14] Wagner, et al, described the following three patterns of cecal involvment in his series:[3] inflammatory lesions of the cecum which involved the cecum alone with preservation of the ileocecal valve, inflammation of the cecum, colon, and small bowel, and finally inflammation of the cecum with sporadic lesions elsewhere in the gastrointestinal tract. Appendiceal involvement was variable.[15]

Upon exploration the surgeon will note an edematous dusky cecum with cloudy peritoneal fluid present. A thickened bowel wall and the surrounding structures such as the right fallopian tube may be involved in the inflammatory process.[11] Mucosal ulcerations, necrosis, vascular congestion, hemorrhage, and stasis thrombi can be seen in the gross specimen.[1-4,15]

Organisms invading the bowel wall are present along with an associated paucity of white blood cells.[2,3,13] *Pseudomonas* and *Candida albacans* have been implicated in some series as the most common offending organisms.[4,13]

Controversy still exists between conservative medical management and operative intervention. Although there currently is no comparative study among the types of therapy employed for this condition, there have been recent reports in the literature by Pokorny[4] and Varki[2] emphasing early surgical intervention with success in these patients.

Both authors stressed fluid and blood support, along with early diagnosis and treatment. Kies, et al, also subscribed to early surgical intervention, stating that survival also depended upon prompt recovery of the white blood cell count postoperatively.[12] These cases have all been anecdotal, however. The argument against surgery in leukemic patients has been that their state of health precludes the risks of operative intervention. In a series of 256 patients with acute leukemia, studied by Kortey and associates, 19 patients underwent 21 emergency operations. The mortality rate was 42%, and all were patients undergoing induction therapy, or being treated for relapse of their disease. Increased survival was related to a white blood cell count of 3000-25000/μL or a state of remission at the time of operation.[16]

Moir, et al, studied a group of patients with leukemia, 16 of whom developed typhlitis.[10] Their aim was at selective, surgical management. They concluded that the mainstay of treatment should be a regimen of bowel rest, nasogastric suctioning, total parental nutrition, and antibiotics. Those patients with on-going sepsis, or with overt indications for surgery such as perforation, obstruction, hemorrhage, or abscess require surgery with appropriate fluid and blood support. However, these patients were sicker, and their mortality rate higher than the medically treated patients. One can see that controversy in treatment persists. While some authors advocate conservative management until hematologic remission occurs,[17] others have shown that surgery may be undertaken when clear indications arise.[2,4,5] The best surgical results would appear to occur in those patients in remission[6,7] and in those patients with white blood cell counts between 3000 and 25000/μL.[6]

In summary, the above patient with typhlitis presented as an acute surgical abdomen and heretofore had been unaware of having leukemia. Although she had received no prior treatment, including chemotherapy, she did receive a short course of steroids and antibiotics for chronic sinusitis prior to the onset of her abdominal complaints. The diagnosis of leukemia was rapidly confirmed before operative intervention. The cecum was found to be consistent with the findings as previously described except for the additional presence of diffuse leukemic infiltrates. Despite sepsis, anemia, and depressed platelet counts, this patient received rapid resuscitation, direct operative control, and postoperative chemotherapy successfully.

REFERENCES

1. Prolla JC, Kirshner JB: The gastrointestinal lesions and complications of the leukemias: Ann of Intern Med 1964, 61:1084-1103.
2. Varki AP, Armitage JO, Feagler JR: Typhlitis in acute leukemia: Successful treatment by early surgical intervention: Cancer 1979, 43:695-697.
3. Wagner ML, Rosenberg HS, Fernback DJ, Singleton EB: Typhlitis: A complication of leukemia in childhood. Am J Roentgenol 1970, 109:341-350.
4. Pokorny BH, Jones TM, Shaikh BS, Oker RC: Typhlitis: A treatable cause of recurrent sepsis: JAMA 1980, 243:682-683.
5. Bjornsson S, Yates TW, Mittleman A, Holland JF: Major Surgery in Acute Leukemia. Cancer 1974, 34:1272-1275.
6. Kortey MJ, Neifield TP: Emergency Surgical Treatment for Patients With Acute Leukemia: Surg Gyn and Obs: 1985, 161:149-157.
7. Selegman BR, Rosner F, Ritz ND: Major surgery in patients with acute leukemia: Am J Surg 1972, 124:629-633.
8. Rasmussen BL, Freeman TS: Major surgery in leukemia. Am J Surg 1975, 130:647-651.
9. Moir DH, Bale PM: Necropsy findings in childhood leukemia, emphasizing neutropenic enterocolitis and cerebral calcification: Pathology 1976, 8:247-258.
10. Moir CR, Scudamore CH, Benny WB: Typhlitis: selective surgical management: Am J Surg 1986, 151:563-566.
11. Del Fava RL, Cronin TG: Typhlitis complicating leukemia in an adult: barium enema findings: AM J Roentgenol 1977, 29:347-348.
12. Kies MS, Luedke DW, Boyd TF, McCue MJ: Neutropenic enterocolitis: two cases of long-term survival following surgery: Cancer 1979, 43:730-734.
13. Dworkin B, Winawer ST, Lightdale CJ: Typhlitis: report of a case with long-term survival and a review of the recent literature. Dig Dis and Sci 1981, 26:1032-1037.
14. Abramson SJ, Berdon WE, Baker DH: Childhood typhlitis: its increasing association with acute myelogenous leukemia. Radiology 1983, 146:61-64.
15. Lea TW, Masys DR, Shackford SR: Typhlitis: treatable complication of acute leukemia therapy. Cancer Clinical Trials 1980, 3:355-362.
16. Meyerovitz MF, Fellows KE: Typhlitis: a cause of gastrointestinal hemorrhage in children: Am J Roentgenol 1984, 143:833-835.
17. Shaked A, Shinar E, Freund H: Neutropenic typhlitis: a plea for conservatism: Dis Colon Rectum 1983, 26:351-352.

CNA's enlightened idea for malpractice insurance: financial stability.

CNA's financial stability provides the security you need in an insurer. CNA will be able next year, and in the years after that, to honor the commitments it has made because CNA has the resources to adequately finance your professional liability coverage.

Standard & Poor's rates CNA's ability to pay its insurance claims at AAA, the highest rating. A.M. Best & Company, an independent rating source, also gives CNA its highest rating, A+. Financial stability is one reason that CNA has been able to provide professionals with quality malpractice protection for over 30 years.

As the 13th largest insurance organization, CNA offers you even more than financial stability. CNA's programs include comprehensive coverages, local claim service, legal defense, results oriented loss control assistance, as well as expert underwriting.

It's your professional reputation and your practice. Protect them with a company that has the financial stability you can depend on. Contact:

A.A.W. Physicians Plan, Inc.
225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The CNA Physicians Protection Program is underwritten by Continental Casualty Company, one of the CNA Insurance Companies.

CNA
For All the Commitments You Make®

Malignant Chondroid Syringoma

PETER CLARK, M.D.

ABSTRACT—A case of malignant chondroid syringoma is presented. Malignant sweat gland tumors lack distinctive clinical features, oftentimes appear benign, but have a high potential for metastasis. Typically, there is often a delay of years prior to surgical therapy.

A variety of staining techniques including monoclonal antibodies are used in research to differentiate the sundry types of sweat gland tumors; but at present these do not provide definitive classification. Because of the rarity of eccrine carcinoma, the literature to date fails to provide satisfactory guidance regarding therapy. While the treatment of choice is radical excision with lymph node dissection, it is not clear that this is needed for all types of malignant sweat gland tumors. The utility of radiation therapy or chemotherapy as adjuncts has not been well established.

Introduction

Carcinoma of the sweat glands is rare. There are no distinctive clinical features which permit clinical diagnosis, and a wide range of other lesions are confused with eccrine carcinoma. A case of malignant chondroid syringoma is presented. The high potential for metastasis in sweat gland carcinoma makes early recognition and aggressive surgical intervention necessary.

Case Report

A 74-year-old, Jamaican-born, black woman presented with a four-year history of a mass on the posterior aspect of her right thigh. It was located at the site of a childhood laceration cause by barbed wire. The mass had been gradually enlarging, althrough recently its rate of growth had increased. There had been no numbness, weakness, pruritus, pain, or tenderness associated with the lesion, although every few days a mild burning was noted which was relieved with application of petroleum jelly.

The patient's past medical history was positive for atherosclerotic heart disease with angina, hypertension controlled with hydrochlorothiazide, and noninsulin-dependent diabetes mellitus controlled with tolazamide. She had no other history of skin lesions. Family history was negative for cancer.

On physical examination, a 4 cm x 8 cm x 4 cm high, well-defined mass was observed on the posterior aspect of the right thigh. The base was slightly constricted. There was neither erythema nor change in pigmentation. The mass was firm and smooth, with two fluctuant areas, 1.5 cm in diameter, on the surface most elevated above the contour of the thigh. It was nontender and fixed to the underlying tissue. There were no satellite lesions, regional bruits or thrills, or regional lymphadenopathy.

Treatment consisted of radical excision. The long axis of the lesion was nearly transverse. To permit closure without grafting, a 10 cm x 20 cm vertical elliptical incision was made. Tissue down to the muscle fascia was removed; there was no apparent involvement of the muscle. There was a moderate increase in vascularity in the dermis underlying the mass. Closure was accomplished through mobilization of full-thickness skin flaps.

Gross pathological examination revealed a polypoid tumor mass which was well demarcated, hemorrhagic, and focally cystic. Microscopic examination revealed an encapsulated skin-appendage tumor with areas of infiltration of the capsule. Most parts were of eccrine differentiation with areas of grandular structure, but some areas showed squamous differentiation, and others showed myxomatous changes. There was moderate nuclear atypism with occasional mitoses, and anaplasia was present in some areas. Extensive hemorrhages were present with areas of hyalinization. The overlying skin was intact, and the specimen margins were free of involvement.

Discussion

The term 'eccrine carcinoma' is used to describe a group of tumors which may arise *de novo* or through transformation of benign eccrine tumors. Malignant varieties have been reported for eccrine poroma, eccrine spiradenoma, syringoma, cylindroma, and chondroid syringoma.[1] The criteria for defining and differentiating varieties of eccrine tumors have been variable, with investigators frequently rejecting earlier data on the basis of revised definition.[2,3] A standard for malignancy which may be useful for retrospective studies with good follow-up is offered by Miller, who calls for evidence of aggressive characteristics such as local recurrence, metastasis, anaplasia, or infiltrative growth to be present in order for a tumor to be called eccrine carcinoma.[2] This is too stringent for clinical assessment and determination of therapy. Long-term follow-up has shown that seemingly benign tumors with more or less well-differentiated patterns may be carcinomas with potential for recurrence and metastasis.[2,4]

Malignant eccrine neoplasms are rare. In a review of a 22-year series of 206,414 tumor specimens by Tulenko and Conway, 0.05% were sweat gland tumors, and only 12% of these were carcinomas.[5] Peak incidence is in the fifth and sixth decades, but cases in patients ranging in age from seven to 90 have been reported.[3,6]

PETER CLARK, M.D., Resident, Department of Family Practice, Williamsport Hospital, Williamsport, PA.

This paper was prepared by Dr. Clark while at the University of Connecticut School of Medicine, Department of Surgery, Farmington, CT.

Reprint requests to: John C. Russell, M.D., Department of Surgery, University of Connecticut School of Medicine, Farmington, CT 06032.

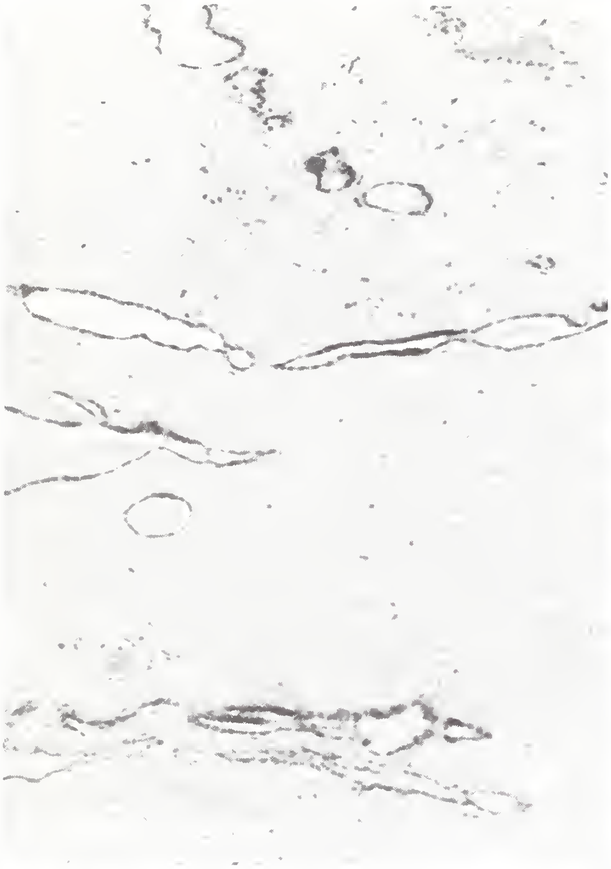


Figure A

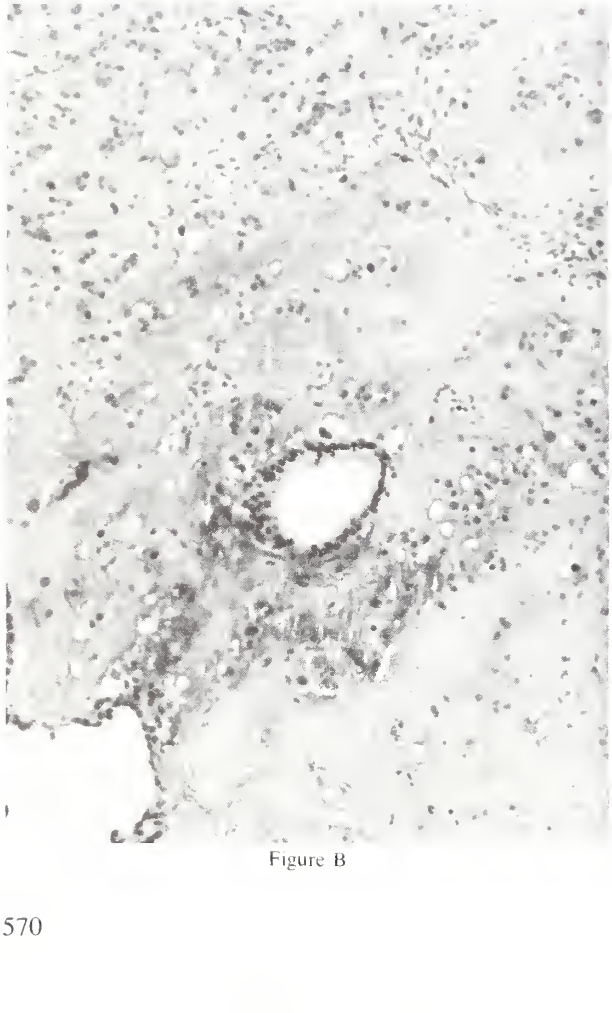


Figure B

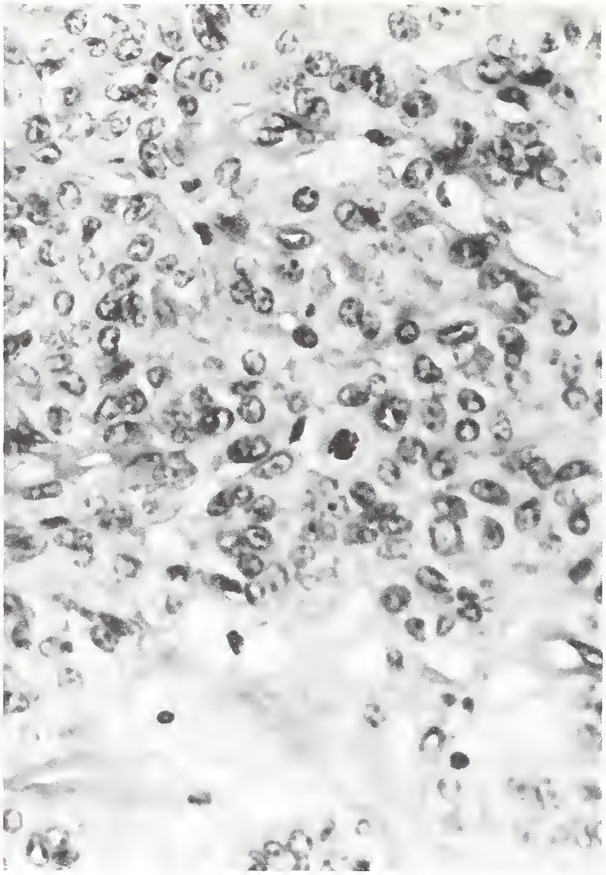


Figure C

The photomicrographs prepared from hematoxylin and eosin stained speciments show the diversity of tissue within the tumor: *A*, scant cells in a fibrous matrix with ductal structures taken from an area near the surface of the tumor; *B*, nests of tumor cells in a mucoid matrix; and *C*, at higher magnification an, an area of hypercellularity with chiefly polygonal cells.

There are no specific clinical features which permit a clinical diagnosis of eccrine carcinoma.[7-9] Preoperative diagnosis of sweat gland carcinoma is rarely made.[3,5,6] Of 35 cases reviewed by Mehregan, none had been properly diagnosed clinically.[3] Of 109 cases reviewed by Tulenko and Conway, 4 had been properly diagnosed prior to surgery. The most common misdiagnosis was "sebaceous cyst" or simply "cyst." These lesions also resemble keloids, dermatofibromas, hemangiomas, lymphomas, squamous cell carcinomas, epitheliomas, melanomas, basal cell carcinomas, cellular hemangiomas, metastatic carcinomas, nevi, papillomas, xanthelasmas, lipomas, dermoids, ganglia, neuromas, sarcoid, and periarteritis nodosa,[5,6,9] and one patient was even diagnosed as having an ingrown toenail.[10] Generally one finds a firm-to-hard nodular mass, with or without ulceration, which may be red or purple in color.[5,6] Distribution is highly variable, and although specific tumor varieties have regions of higher incidence, the benign and malignant versions of a tumor type may have different distributions.[6,7] The tumors are usually painless.[6,11,12] Commonly the tumor has a long period of slow growth, which may be followed by a sudden growth spurt with invasion or metastasis.[2,7,13] Metastases are most commonly to regional nodes, bone, skin, and lungs, and less often to brain, pelvis, and kidney.[7,9] In some cases a history of prior trauma is obtained.[12,13]

The present tumor has been identified as a malignant chondroid syringoma. The benign version of this tumor appears as a firm, solitary, intradermal nodule, typically less than 5 cm in diameter, which has closely packed ductal structures in a myxoid, chondroid, or fibrous stroma.[14] Among eccrine carcinomas, malignant chondroid syringomas are relatively well differentiated.[3] Thus, although the aggressive characteristics cited by Miller[2] are not well documented in the present case, the presence of occasional atypical mitoses, nuclear atypism, slight infiltration of the capsule, and the large size of the tumor warrant a working diagnosis of malignancy. Further, benign chondroid syringoma is usually found on the head, whereas the malignant version is more common on the trunk and extremities.[4]

> The light microscopic appearance of the tumor cells of malignant chondroid syringoma varies greatly from cuboidal or polygonal to spindle-shaped cells. Even vacuolated cells are seen. Tumor cells contain diastase-stable, PAS-positive substances, ie, glycogen, in the cytoplasm. In most of the reported cases, these were epithelial cells with tubular differentiation and mesenchymal tissue with typical chondroid appearances... Most reported cases had malignant appearances such as mitoses, cellular pleomorphism, and islands of cells away from the main tumor mass.[4]

Due to the variability of eccrine tumors and the differences between benign and malignant counterparts, many tumors are difficult to classify with certainty.[10] The present tumor also resembles eccrine spiradenoma in being circumscribed, having hyaline material, small cysts, and areas of squamous differentiation, but it lacks the prominent sheets and cords found in spiradenoma.

The characteristics of malignant eccrine carcinomas often differ from those of their benign counterparts.[4] Although not performed in the present case, special staining techniques and monoclonal antibodies may be useful for determining tumor types. Two cases of malignant chondroid syringoma are described as having the appearance of mucinous adenocarcinoma, and Ishimura et al describe the use of 27 staining techniques used to differentiate the two. These are chiefly to determine the presence of hyaluronic acid and chondroitin sulfate A and/or C, and the absence of neutral mucin and sialic acid.[4] It is noteworthy that despite the histological similarity between these tumors, the mucinous adenocarcinoma is no longer considered an eccrine tumor by some.[1] Monoclonal antibodies may have roles in distinguishing types of tumors and in elucidating the histopathogenesis of tumors. Hashimoto et al have produced two eccrine gland-associated monoclonal antibodies: EKH 5 labels the secretory portion of eccrine glands in normal skin; EKH 6 labels both eccrine and ductal structures.[15] These hold promise for distinguishing eccrine carcinoma from metastatic tumor; sweat gland tumors have been confused with breast carcinoma on microscopic examination.[6] Monoclonal antibodies may also complement electron microscopic studies, which are presently contradictory with respect to the histogenesis of malignant chondroid syringoma.[4]

Eccrine carcinoma has a high potential for metastasis. In Miller's review of 39 cases, 28 patients (72%) developed metastatic disease.[2] Two factors which may contribute are the long interval prior to diagnosis and treatment, averaging five, nine, and ten years in three studies,[2,11,16] and the relatively benign appearance of the lesions, which may lead to less aggressive surgical intervention. Even with subsequent surgery in 11 of the 39 cases reviewed by Miller, 28% of the patients died of their disease. Another study of 42 cases treated with wide excision found 20 apparently free of disease at five years.[17] In a study of 33 cases of metastatic sweat gland carcinoma, lymphatic spread was present in all and hematogenous spread was present in 48%.[17]

Because of the high potential for metastatic spread, the preferred therapy for sweat gland carcinoma is radical excision with regional node dissection. Some suggest that a limited delay prior to lymphatic dissection is acceptable if no lymphadenopathy is present and/or malignancy is only suspected at the time of surgery. Radiation therapy may be useful as an adjunct to surgery, but it is reported to be ineffective after metastasis has occurred.[11] A review of the literature reveals no recent evaluations of this therapy; studies based on radiotherapy techniques of the 1950's are still cited in current reports. Chemotherapy may also be useful as an adjunct. Sweeping dismissals of its utility are suspect because of the small body of data and the diversity of sweat gland carcinomas. The combination of mitomycin, vinblastine sulfate, and cis-platinum has been unsuccessful in treating malignant eccrine spiradenoma.[12] Etretinate, an aromatic retinoid, has been reported for use in treating epidermotropic eccrine carcinoma.[18] A report of one case of vulvar sweat gland carcinoma having estrogen receptors raises the possibility of hormonal manipulation.[19] Cure rate depends upon the presence of metastases to lymph nodes and the degree of cellular anaplasia.[17]

To evaluate therapeutic options effectively and to improve the diagnosis of sweat gland tumors, it will be necessary to establish a more complete data base. Towards this end, a registry for sweat gland tumors has been established by Dr. D.J. Santa Cruz, a pathologist at Barnes Hospital in St. Louis, Missouri.

Conclusion

Malignant chondroid syringoma and other malignant sweat gland tumors often lack distinctive clinical factors. Despite their often benign appearance, they have a high potential for metastasis and require radical surgical excision. Regional lymph node dissection is generally advocated, although it is not clear that this is required for all types of malignant sweat gland tumors. The role of adjuvant radiation therapy and/or chemotherapy is unresolved.

Acknowledgements

I wish to thank Drs. Albert Geeter and Jane Grant-Kels for their comments on this manuscript; Dr. Thomas Ciesielski for the preparation of photographs; and Dr. John Russell for his encouragement and general assistance in the preparation of this article.

REFERENCES

1. Gutteridge BH: Appendageal tumors. In Emmett AJJ, O'Rourke MGE (eds): "Malignant Skin Tumors." New York: Churchill Livingstone 1982, 155-157.
2. Miller WL: Sweat gland carcinoma. Am J Clin Pathol 1967, 47(6):767-780.
3. Mehregan AH, Hashimoto K, Rahbari H: Eccrine adenocarcinoma. A clinicopathologic study of 35 cases. Arch Dermatol 1983, 119:104-114.
4. Ishimura E, Iwamoto H, Kobashi Y , Yamabe H, Ichijima K: Malignant chondroid syringoma. Report of a case with widespread metastasis and review of pertinent literature. Cancer 1983, 52:1966-1973.
5. Tulenko JF, Conway H: An analysis of sweat gland tumors. Surg Gynecol Obstet 1965, 121:343-348.
6. Wertkin MG, Bauer JJ: Sweat gland carcinoma, current concepts of surgical management. Arch Surg 1976, 111:884-885.
7. Devita VT, Hillman S, Rosenberg SA (eds): "Cancer; Principles and Practice of Oncology." Philadelphia: Lippincott 1982, pp 1101-1104.
8. Monson JRT, Lane BE: Epidermiotropic eccrine carcinoma (Ltr). J R Soc Med 1984, 77:85.
9. Jacobson YG, Rees TD, Grant R, Fitchett VH: Metastasizing sweat gland carcinoma; notes on the surgical therapy. Arch Surg 1959, 78:574-581.
10. Futrell JW, Krueger GR, Morton DL, Ketcham AS: Carcinoma of sweat gland in adolescents. Am J Surg 1972, 123:594-597.
11. Hirsh LF, Enterline HT, Rosato EF, Rosato FE: Sweat gland carcinoma. Ann Surg 1971, 174:283-286.
12. Yaremchuk MJ, Elias LS, Graham RR, Shaw Wilgis EF: Sweat gland carcinoma of the hand: two cases of malignant eccrine spiradenoma. J Hand Surg 1984, 9A(6):910-914.
13. Pinkus H, Mehregan AH: "A Guide to Dermatohistopathology." New York: Appleton-Century Crofts, 1981.
14. Weedon D: Eccrine tumors: a selective review. J Cutan Pathol 1984, 11:421-436.
15. Hashimoto K, Eto H, Matsumoto M, Hori K: Anti-keratin monoclonal antibodies: production, specificities and applications. J Cutan Pathol 1983, 10:529-539.
16. Stout AP, Cooley SG: An investigation of carcinoma of the sweat glands. Cancer 1951, 4:521, cited in Tulenko JF, op cit.
17. El-Domeiri AA, Brasfield RD, Huvos HG, Strong EW: Sweat gland carcinoma: a clinico-pathologic study of 83 patients. Ann Surg 1971, 173:270-274.
18. Darley CR, Pegum JS, Pollock DJ: Epidermotropic eccrine carcinoma. J R Soc Med 1983, 76:616-618.
19. Santa Cruz DJ, Prioleau DG: Adnexal carcinomas of the skin. J Cutan Pathol 1984, 11:450-456.

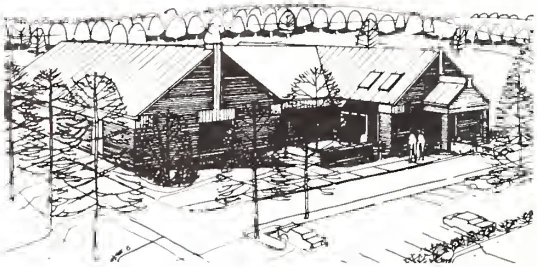
Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:
- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:
- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Médical) for Ophthalmology.
- CO2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

Important Advances in Clinical Medicine

Emergency Medicine

The Scientific Board of the California Medical Association presents the following inventory of items of progress in emergency medicine. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in emergency medicine that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Emergency Medicine of the California Medical Association and the summaries were prepared under its direction.

Intraosseous Infusion for Emergency Vascular Access

Establishing intravenous (IV) access in the resuscitation of an ill child is notoriously difficult. Peripheral veins may be collapsed, and often resuscitation is delayed while central intravenous access and vascular cutdowns are attempted. In contrast, intraosseous access is rapidly achieved and simple to do.

Intraosseous infusion of fluids and drugs has been described since the 1920s, and much laboratory and clinical investigation of its use was reported in the 1940s. In the 1950s, however, with the development of improved, disposable IV needles, intraossious infusion was neglected. Only in the past few years has this technique been reevaluated as an alternative for intravascular access in a critically ill child.

Most authors recommend intraosseous entry on the anteromedial surface of the tibia 1 to 3 cm below the tibial tuberosity. Alternatively, the femur of distal tibia can be punctured. Needles with stylets, such as spinal or bone marrow needles, are preferred, but 18- or 20-gauge hypodermic needles may be used. Steady pressure or a screwing motion is used to traverse the bony cortex. Needle placement in the bone marrow is confirmed by a decrease in resistance during insertion, the ability to aspirate marrow and the free inflow of fluid. IV tubing is connected to the needle and drugs and fluids infused as needed.

Extensive marrow sinusoids empty into large medullary venous channels, which in turn drain into nutrient and emissary veins and return to the systemic circulation. Various studies in the 1940s have shown rapid entry of dyes, fluids and drugs from the bone marrow into the central circulation when the circulatory system is intact. More recent studies have shown the efficacy of this route during fibrillatory cardiac arrest in swine and hypotensive hemorrhage in calves. Any drug or fluid normally administered intravenously can be used intraosseously at comparable doses.

Complications are rare and include hematoma, subcutaneous infiltration and leakage from multiple puncture sites. Osteomyelitis has been described only with the infusion of hypertonic solutions or with long-term use of the intraosseous route. Fat or bone embolus has not been reported. Histologic and radiographic follow-up of involved bone does not show significant abnormality.

Intraosseous infusion is a safe, easy and reliable method of vascular access in an emergency situation.

Judith C. Brillman, M.D.
Stanford, California

REFERENCES

Glaeser PW, Losek JD: Emergency intraosseous infusions in children. Am J Emerg Med Jan 1986, 4:34-36.

Parrish GA, Turkewitz D, Skiendzielewski JJ: Intraosseous infusions in the emergency department. Am J Emerg Med Jan 1986, 4:59-63.

Rosetti VA, Thompson BM, Miller J, et al: Intraosseous infusion: An alternative route of pediatric intravascular access. Ann Emerg Med Sep 1985, 14:885-888.

Shoor PM, Berryhill RE, Benumof JL: Intraosseous infusion: Pressure-flow relationship and pharmacokinetics. J Trauma Oct 1979, 19:772-774.

Spivey WH, Lathers CM, Malone DR, et al: Comparison of intraosseous, central and peripheral routes of sodium bicarbonate administration during CPR in pigs. Ann Emerg Med Dec 1985, 14:1135-1140.

Reprinted from *The Western Journal of Medicine*, May, 1987.

Sodium Bicarbonate Therapy in Cardiac Arrest

Traditional medical therapy for patients with cardiac arrest has included the use of sodium bicarbonate to reverse arterial acidosis. Previously, early administration of bicarbonate in the algorithms of advanced cardiac life support (ACLS) courses has led to its widespread use during resuscitation efforts. This occured despite warnings in the textbook describing adverse effects of the use of bicarbonate.

In recent years mounting evidence has made these concerns more prominent. A closer study of blood chemistry has shown that arterial blood determinations fail to adequately reflect severe respiratory acidosis on the venous side. Moreover, a direct correlation between extracellular and intracellular pH does not exist. Several animal models have shown poorer results with bicarbonate infusion for lactic acidosis than with infusing saline solution alone.

Several mechanisms account for these observations. Infusing bicarbonate generates carbon dioxide (CO_2). With inadequate ventilation or excessive bicarbonate infusion, CO_2 levels rise rapidly, creating a respiratory acidosis. CO_2 rapidly diffuses across the cell membranes to cause intracellular acidosis. Myocardial function becomes depressed when there is increased intracellular carbon dioxide tension. CO_2 diffuses across the blood-brain barrier more readily than does bicarbonate. Thus, a paradoxical cerebrospinal fluid acidosis occurs, which tends to depress respiration further.

Other adverse effects of sodium bicarbonate administration include a rise in serum osmolality, which may worsen the acidosis, and a shifting of the oxyhemoglobin dissociation curve. This leftward shift results in an increased affinity for oxygen and decreased unloading to the cells.

Adequate ventilation early in cardiac arrest states may prevent significant acidosis for about 30 minutes. Hyperventilation alone, therefore, is the initial therapy in arrest states. The use of bicarbonate therapy should be guided by arterial blood gas determinations in a patient with profound metabolic acidosis, and only when there is proper ventilation.

Ricardo Martinez, M.D.
Stanford, California

REFERENCES

Adult advanced cardiac life support, Pt 3, In Standards for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC). JAMA 1986, 255:2933-2954.

Bishop RL, Weisfeldt ML: Sodium bicarbonate administration during cardiac arrest. JAMA Feb 1976, 235:506-509.

Graf H, Leach W, Arieff AI: Evidence for a detrimental effect of bicarbonate therapy in hypoxic lactic acidosis. Science Feb 1985, 227:754-756.

Stacpoole PW: Lactic acidosis: The case against bicarbonate therapy. Ann Intern Med Aug 1986, 105:276-278.

McIntyre KM, Lewis AJ (Eds): Textbook of Advanced Cardiac Life Support. Dallas, American Heart Association, 1983.

Frostbite

Frostbite is local injury resulting from freezing cold exposure and remains a serious medical problem. Pathologically, frostbite injuries probably result from a combination of extracellular ice crystal formation with the subsequent development of intracellular osmotic pressure gradient differences that ultimately result in cellular membrane disruption, dehydration and death. Also, microvascular changes including erythrocyte sludging, microthrombus formation and decreased blood flow result in tissue hypoxia and necrosis.

The initial management for deep tissue injury is rapid rewarming in water at 38°C to 41°C (100°F to 106°F). This appears to result in the greatest tissue preservation and has replaced previous folklore such as rubbing the affected part with snow or another body part, exposing to dry heat (such as a campfire) or administering alcohol, as all of these are detrimental. Before rapid rewarming, tissue must be protected to avoid either additional mechanical trauma or freeze-thaw cycles. Refreezing of thawed tissue drastically increases tissue damage and loss. After rapid thawing, adjunctive therapy may include some or all of the following measures: twice-a-day whirlpool baths at temperatures between 32°C and 35°C (90°F and 95°F) containing either povidone-iodine, hexachlorophene or 0.5% silver nitrate; administration of 1% silver sulfadizine solution to superficially infected open wounds; appropriate management of blisters and blebs—an area of controversy, as some authors advocate leaving blisters intact if uninfected, whereas others recommend debridement and application of thromboxane inhibitors—and giving systemic salicylates concomitantly to inhibit prostaglandin formation. Later, escharotomy may be done on lateral or dorsal aspects of digits after the eschar has dried to increase joint mobility.

Early estimates of tissue damage are difficullt, and debridement and amputation are delayed until sufficient time has elapsed (30 to 90 days) for tissues to demarcate and show mummification. Fasciotomy may be required in cases where freezing has been of long duration and where rapid thawing may not restore tissue perfusion. Isotope scanning with the use of sodium pertechnetate Tc 99m or measurement of compartment pressures may all help delineate failure of extremity perfusion and the need for subsequent debridement; other adjunctive measures may include the administration of antibiotics, skin grafting, the use of hyperbaric oxygen, tetanus prophylaxis, sympathectomy, vasodilator therapy, sympathetic blockade, biofeedback and the use of dextran. It is unclear at present whether these therapies improve tissue perfusion enough to affect tissue survival, but it is clear that with the use of some of them, patients will have decreases in pain, edema and infection and will show earlier and more proximal tissue demarcation.

For primary care physicians, the initial management of significant deep cold injury is straightforward, consisting of rapid rewarming. The management thereafter, however, is time-consuming and sometimes confusing because the methods that result in the greatest tissue survival have still not been prospectively delineated.

Michael Barmache, M.D.
Portland

REFERENCES

McCauley RL, Hing DN, Robson MC, et al: Frostbite injuries: A rational aproach based on the pathophysiology. J Trauma 1983, 23:143-147.

Mills WJ Jr: Summary of treatment of the cold injured patient—Frostbite. Alaska Med Apr-Jun 1983, 25:33-38.

Salimi Z, Vas W, Tang-Barton P, et al: Assessment of tissue viability in frostbite by ^{99m}Tc pertechnetate scintigraphy. AJR Feb 1984, 142:415-419.

Ibuprofen Overdose

Ibuprofen was introduced as a prescription nonsteroidal anti-inflammatory agent in 1974. It has now been available as an over-the-counter (OTC) medication since 1984, resulting in substantially more widespread use and, hence, a greater probability of overdose and accidental poisoning. Statistics from the American Association of Poison Control Centers indicate a total of 6,510 exposures to ibuprofen in 1985. This compares with a similar exposure rate of 6,425 to OTC aspirin formulations for adults. OTC acetaminophen preparations for adults accounted for 12,100 exposures. Symptoms occurred in 17% of ibuprofen overdoses, compared with aspirin (28%) and acetaminophen (20%). Six deaths were reported from ibuprofen overdose, six from acetaminophen and ten from aspirin overdose. Death rates involving acetaminophen and aspirin are considerably higher if combination narcotic agents are included. Ibuprofen is not currently available in pediatric preparations or in combination with other analgesics.

In a study of ibuprofen overdose, an overall symptomatic rate of 19% was noted, but when children and adults were separated, symptomatic rates were 7% and 47%, respecively, suggesting that the adult overdose, which is usually intentional, is more likely to result in toxic effects.

Mild symptoms of ibuprofen toxicity include abdominal pain, nausea, vomiting, drowsiness, headache, nystagmus and diplopia. Serious toxic effects from overdosage may result in coma, hypotension, bradycardia, apnea, metabolic acidosis and renal failure.

Children ingesting less than 100 mg per kg of ibuprofen are unlikely to have symptoms and may be observed at home with poison center consultation. Ingestions of 100 to 200 mg per kg may be managed at home with ipecac-induced emesis and observation. If more than 200 mg per kg has been ingested, the child should be referred to an emergency department for evaluation and treatment. All adults should be evaluated and treated because there is a poor correlation between historical data and the incidence of symptoms. Additionally, adults will require emergency psychiatric evaluation following medical treatment.

Treatment is primarily supportive. Airway control and artificial ventilation are indicated depending on a patient's condition. Hypotension is managed with crystalloid and vasopressors, if needed. Seizures should be managed with the administration of diazepam, followed by phenytoin or phenobarbital; the use of sodium bicarbonate may be required for metabolic acidosis. Bradycardia is treated by giving atropine. Ipecac should be administered as soon as possible following ingestion when not contraindicated. Gastric lavage should be done instead of emesis stimulation when a patient is comatose, lethargic or having seizures. Activated charcoal and a cathartic should be administered following completion of gastric emptying. The role for multiple-dose activated charcoal and forced alkaline diuresis as a means to enhance elimination is unproved.

A nomogram has been developed for ibuprofen plasma concentrations similar to that for aspirin and acetaminophen and may be useful in the early prediction of patients who are likely to have symptoms develop. Plasma concentrations are not widely available and are probably not necessary for managing most cases that remain without symptoms for four to six hours. In a series of 126 cases of ibuprofen overdose, symptoms did not develop later than four hours following ingestion.

As ibuprofen becomes more widely available as a nonprescription medication, overdosage will become a more frequent problem requiring treatment in emergency departments.

Brent T. Burton, M.D.
Portland

REFERENCES

Bennett RR, Dunkelberg JC, Marks ES, et al: Acute oliguric renal failure due to ibuprofen overdose. South Med J Apr 1985, 78:490-491.

Hall AH, Smolinski SC, Conrad FL, et al: Ibuprofen overdose: 126 cases. Ann Emerg Med Nov 11 1986, 15:1308-1313.

Hunt DP, Leigh RJ: Overdose with ibuprofen causing unconsciousness and hypotension. Br Med J 1980, 281:1458-1459.

Litovitz TL, Norman SA, Veltri JC: 1985 Annual report of the American Association of Poison Control Centers national data collection system. Am J Emerg Med Sep 1986, 4:427-458.

Transcutaneous Cardiac Pacing

Transcutaneous cardiac pacing was initially described in 1952, but its use was generally abandoned because of the painful muscle contraction and interference with electronic monitoring associated with its use and the development of other techniques of cardiac pacing. Recently interest has been renewed because of the recognized need for an effective, noninvasive, rapidly initiated method of caridac pacing.

The procedure is relatively simple and requires little training. An external pacing device is connected to two large electrodes. These electrodes are about 8 cm in diameter and are placed in an anterior (cardiac apex)-

posterior (left subscapular) configuration. Successful pacing, if it is going to occur, generally requires about 50 to 100 mA. The pacing device can be used in either the demand or fixed-rate mode depending on the clinical circumstances. Electrical capture rates and resulting hemodynamic improvement appear to be equal to transvenous pacing over short periods of time.

Both patients with asystole and those with bradycardia with hemodynamic dysfunction may benefit from the use of transcutaneous pacing. In patients with cardiac arrest the success rate of electrical capture and hemodynamic improvement has been low, but in those with heart block or bradycardia with some perfusion, the results of pacing have been much better. The adoption of larger electrodes that decrease skin stimulation and longer pacing stimuli that decrease the electrical threshold for capture has enabled most awake patients to tolerate the procedure. Ventricular arrhythmias have not been initated and damage to the myocardium has not occurred with the use of this technique.

Transcutaneous pacing is a rapid and effective method of pacing the heart in emergency situations. It should be considered for use in asystolic patients and those with bradycardia and hemodynamic dysfunction.

Kenneth J. Rhee, M.D.
Sacramento, California

REFERENCES

Clinton JE, Zoll PM, Zoll RH, et al: Emergency noninvasive external cardiac pacing. J Emerg Med 1985, 2:155-162.

Dalsey WC, Syverud SA, Hedges JR: Emergency department use of transcutaneous pacing for cardiac arrests. Crit Care Med May 1985, 13:399-401.

Falk RH, Zoll PM, Zoll RH: Safety and efficacy of noninvasive cardiac pacing—A preliminary report. N Engl J Med Nov 1983, 309:1166-1168.

Paris PM, Stewart RD, Kaplan RM: Transcutaneous pacing for bradyasystolic cardiac arrests in prehospital care. Ann Emerg Med 1985, 14:320-323.

Evaluating Patients With Tricyclic Antidepressant Overdose for Risk of Complications

Patients who ingest tricyclic antidepressant drugs present multiple problems for emergency physicians. Over the years, a relatively standardized treatment of major toxic reactions has developed that includes supportive care, systemic alkalinization and selected antiarrhythmics. In-hospital cardiac monitoring for all patients with evidence of possible tricyclic antidepressant overdose has also become common practice. There has long been concern over whether the use of monitored beds is warranted for patients who present with minimal findings. The isolated reports of serious "delayed" toxic reactions after initially having near-normal findings were taken as evidence, however, that an emergency physician had no choice but to seek admission and monitoring for almost all patients, no matter how apparently trivial their poisoning on initial presentation.

A stumbling block in this dilemma has been the lack of a simple reliable indicator for toxicity. Measuring serum drug concentrations has been shown to be unreliable. The QRS interval on an electrocardiogram was shown in early work to have some correlation with toxic effects but not to be highly accurate or predictive. Recently in a small prospective study, the QRS interval was reported to be an accurate indicator for a risk of ventricular arrhythmias or seizures, but a retrospective review by other authors failed to confirm this. Further prospective studies are needed on this issue.

While an ideal indicator of toxicity risk has not been identified, observing patients for the presence or absence of certain clinical signs may identify those patients at minimal or no risk of a subsequent toxic condition. As early as 1981, a clinical study reported that all patients who died displayed manifestations of a toxic reaction early in their clinical course. A recent review of the rare cases of "delayed toxicity" showed they occurred in patients who did not receive the modern standard of gastric emptying and activated charcoal administration. A large-scale epidemiologic review of fatalities due to tricyclic antidepressant overdose has shown that all patients who arrive at a hospital alive will manifest significant signs of toxic effects within an hour of presentation. Other clinical studies of patients admitted with nonfatal tricyclic antidepressant overdosage have confirmed this finding that significant evidence of a toxic reaction occurs during the early hours of evaluation, if it is to occur at all.

Multiple studies now indicate that initially observing patients who present with possible tricyclic antidepressant overdosage for a period of six hours should identify a group with a low risk of a subsequent serious toxic reaction. All patients should have their stomachs emptied, receive activated charcoal and have electrocardiographic monitoring. A patient who has altered consciousness, arrhythmias, seizures, respiratory compromise, cardiac conduction defects or hypotension warrants intensive care admission. Other patients can be relegated to a lower level of medical or psychiatric (depending on condition) care. Patients who show no toxic effects other than sinus tachycardia after appropriate initial decontamination and six hours of careful observation are in an extremely low-risk group and may be suitable for outpatient management after psychiatric evaluation.

Garrett E. Foulke, M.D.
Sacramento, California

Michael Callaham, M.D.
San Francisco

REFERENCES

Boehnert MT, Lovejoy FH Jr: Value of the QRS duration versus the serum drug level in predicting seizures and ventricular arrhythmias after an acute overdose of tricyclic antidepressants. N Engl J Med Aug 1985, 313:474-479.

Callaham M, Kassel D: Epidemiology of fatal tricyclic antidepressant ingestion: Implications for management. Ann Emerg Med Jan 1985, 14:1-9.

Foulke GE, Albertson TE: QRS interval in tricyclic antidepressants overdosage:Inaccuracy as a toxicity indicator in emergency settings. Ann Emerg Med Feb 1987, 16:160-163.

Foulke GE, Albertson TE, Walby WF, et al: Tricyclic antidepressant overdose: Emergency department findings as predictors of clinical course. Am J Emerg Med 1986, 4:496-500.

Stern TA, O'Gara PT, Mulley AG, et al: Complications after overdose with tricyclic antidepressants. Crit Care Med Aug 1985, 13:672-674.

Treatment of Snakebite

Rattlesnake bites should be considered a medical emergency, and patients should be quickly transported to a hospital. The clinical findings following snake envenomation are dependent on many variables. The toxicity of venom varies among the 25 or more species of rattlesnakes in the United States. In about 15% to 25% of the victims bitten by vipers, no envenomation occurs. If a victim is bitten and envenomated, the amount of venom injected depends on many factors such as the activity of the snake, defensive or offensive posturing, the size of the snake and the depth and number of bites.

Recommendations for the treatment of rattlesnake bites have been the subject of debate. Tourniquets may not be helpful in affecting overall outcome. Originally designed to obstruct lymph flow, the significance of lymph drainage to systemic morbidity and mortality has never been clearly established. In addition, tourniquets may be applied too tightly, leading to venous congestion and further damage to an already injured extremity. In general, incision and suction may not be helpful in the field management of most snakebites and may only add insult to injury. Some authorities still recommend suction if a patient is more than an hour away from definitive care, but it must be begun within 5 minutes and is of absolutely no use if started more than 15 minutes after envenomation. At best no more than 10% to 20% of the venom can be removed. In the past, applying ice had been recommended to cool the snakebite area locally or even an entire extremity. This is no longer recommended.

Recently the American Association of Poison Control Centers and the American College of Emergency Physicians have recommeded the following measures for first aid: "(1) immobilize the bitten part, (2) remove constrictive items and rings, (3) put the victim at rest and (4) transport to the nearest medical facility."

Numerous measures should be begun immediately when a patient arrives at hospital. Laboratory studies such as a complete blood count, electrolyte levels, arterial blood gas determinations, fibrinogen titers, urinalysis, platelet count, clotting times, prothrombin and partial thromboplastin times and type and crossmatch should be done immediately. Antivenom available in the United States for the treatment of rattlesnakes is a polyvalent blend effective against all species. Its use should be considered in all patients with systemic signs of envenomation and those with significant local effects. Rattlesnake bites are generally classified as minimal, moderate or severe. The guidelines for the use of antivenom are as follows: minimal bites, 5 to 8 vials; moderate bites, 8 to 12 vials, and severe bites, 13 vials or more as titrated to clinical condition. The patient should be skin tested before administering the antivenom, as it is derived from horse serum. If a patient is allergic to the antivenom, it can be given cautiously in conjunction with other measures described elsewhere. As many as ten ampules can be placed in 500 ml of a normal saline solution and run in over a one-hour period. Recent recommendations have discouraged the use of corticosteroids (except in patients hypersensitive to antivenom) and excisional therapy. A fasciotomy for compartment syndromes should only be considered when objective monitoring shows elevated pressures unresponsive to antivenom.

Robert W. Derlet, M.D.
Garrett E. Foulke, M.D.
Sacramento, California

REFERENCES

Arizona Poison and Drug Information Center: Snake Venom Poisoning Chart. Tucson, Arizona Health Sciences Center, University of Arizona, August 1984.

Butner AN: Rattlesnake bites in northern California. West J Med Aug 1983, 139:179-183.

Hardy DL, Kunkel DB, Russell FE, et al: Management of poisonous snakebite. J Vet Hum Toxicol Apr 1983, 25:135-137.

Russell FE: Snake venom poisoning in the United States. Annu Rev Med 1980, 31:247-259.

Clinical Uses for a New β-Lactamase Inhibitor Antibiotic

Ampicillin and its analog, amoxicillin, have been considered the initial drugs of choice for treating bacterial infections involving the genitourinary tract, respiratory tract, sinuses and middle ear. Recently, however, common bacterial respiratory pathogens such as *Hemophilus influenzae* and genitourinary pathogens such as *Escherichia coli*, *Proteus mirabilis* and *Neisseria gonorrhoeae* have become increasingly resistant. *Staphylococcus aureus* has long been resistant to penicillins. In addition, newly recognized respiratory pathogens such as *Branhamella catarrhalis*, *Legionella* species and anaerobes such as *Bacteroides fragilis* display penicillin resistance. The emergence of bateriologic resistance has coincided with increasing clinical failures.

The basis for this resistance is bacterial production of β-lactamase, an enzyme that renders the penicillin inactive. Recently an oral antibiotic has been introduced in which a β-lactamase inhibitor, clavulanate, is combined with amoxicillin (Augmentin). Clavulanate protects the amoxicillin from destruction by β-lactamases of many organisms including all those mentioned above. Over the past five years, studies have shown the effectiveness of Augmentin in treating many adult and pediatric infections.

Augmentin has been shown to be effective for the treatment of acute otitis media and trials have shown it to be equal or superior to cefaclor. It has been recommended for patients who do not initially respond to first-line drugs or for initial therapy in areas where the incidence of β-lactamase-producing bacteria is high. Augmentin has also been shown to be effective for treating acute sinusitis, bronchitis and pneumonia. Recent in vitro studies suggest that *Legionella* species are sensitive to Augmentin.

The incidence of β-lactam-resistant urinary tract infections has steadily increased. Augmentin has been shown to be effective in treating resistant infections. It is currently being evaluated as a single-dose therapy for uncomplicated urinary tract infections.

Penicillinase-producing *N gonorrhoeae* now constitutes a serious health problem. Augmentin is highly active in vitro for these organisms and its use is currently being evaluated clinically.

Augmentin has been shown to successfully treat skin and soft tissue infections. It is an ideal single drug to treat animal bites, as it covers the most common pathogens, *S aureus* and *Pasteurella multocida*.

This combination drug represents a signficant addition to the antibiotic armamentarium of emergency physicians.

David A. Talan, M.D.
Sylmar, California

REFERENCES

Amoxicillin-clavulanic acid (Augmentin). Med Lett Drugs Ther Nov 1984, 26:99-100.

Goldstein EJC, Reinhardt JR, Murray PM, et al: Animal and human bite wounds: A comparative study, Augmentin vs penicillin +/− dicloxacillin, In Progress and Perspectives on β-Lactamase Inhibitors: A Review of Augmentin. Postgrad Med Sep-Oct 1984, (a special report):105-110.

Marchant CD, Shurin PA, Johnson CE, et al: A randomized controlled trial of amoxicillin plus clavulanate compared with cefaclor for treatment of acute otitis media. J Pediatr Nov 1986, 109:891-896.

Tolkoff-Rubin NE, Rubin RH, Weber DJ: Augmentin in the treatment of urinary tract infection, In Progress and Perspectives on β-Lactamase Inhibitors: A Review of Augmentin. Postgrad Med Sep-Oct 1984, (a special report):78-85.

Cephalosporins for Bacterial Meningitis

Third-generation cephalosporin antibiotics have been used successfully in the treatment of acute bacterial meningitis. These agents are now preferred for the treatment of Gram-negative bacillary meningitis and for the empiric therapy for bacterial meningitis in immunocompromised or high-risk patients. They are often chosen by pediatricians in the empiric treatment of bacterial meningitis in patients from the newborn period through childhood.

The experience with the use of first-generation cephalosporins in bacterial meningitis was disappointing because of the low concentrations of these antibiotics in the cerebrospinal fluid (CSF). Of the second-generation cephalosporins, including cefamandole, cefoxitin and cefuroxime, only cefuroxime has proved efficacious in treating meningitis caused by *Neisseria meningitidis, Diplococcus pneumoniae* or *Hemophilus influenzae*. The third-generation cephalosporins offer new advantages in the treatment of meningitis because they are active at obtainable CSF concentrations, the bacteria that cause most cases of meningitis are not resistant and the drugs are safer than many of the standard antibiotics recommended for meningitis—that is, chloramphenicol and aminoglycosides.

The organisms most often responsible for neonatal meningitis are group B streptococcus and *Escherichia coli*. Thus, ampicillin and gentamicin sulfate are the standard antibiotics chosen for the empiric treatment of neonatal meningitis pending CSF and blood culture results. But recent studies have shown that using a combination of ampicillin (to cover the possibility of *Listeria*) and one of several third-generation cephalosporins (cefotaxime sodium, ceftriaxone sodium or cefuroxime) is equally efficacious. This regimen also avoids the necessity to follow serum or CSF (or both) gentamicin concentrations and to administer aminoglycosides intrathecally.

After the first two months of life and during the remainder of the first decade of life, *H influenzae* type B, *D pneumoniae* and *N meningitidis* are the organisms responsible for most cases of meningitis. The standard recommendation for empiric antibiotic therapy pending CSF culture results is to give ampicillin and chloramphenicol. The distinction, however, between the different types of bacteria causing meningitis based on whether a patient is younger or older than 2 months of age is becoming less reliable. Furthermore, ampicillin resistance due to the production of β-lactamase by *Hemophilus* is a common problem now, and choramphenicol resistance due to acetyltransferase production by *Hemophilus* is predicted to become a common problem within a few years. Finally, it is recommended that chloramphenicol concentrations be monitored to avoid subtherapeutic or toxic concentrations in younger patients. Thus, third-generation cephalosporins (such as cefotaxime, ceftriaxone and cefuroxime) have again been found efficacious both in treating meningitis due to *H influenzae* and in avoiding the many problems associated with the standard therapies.

In adolescents and in adults, penicillin is the antibiotic of choice because bacterial meningitis in these age groups is usually due to either *D pneumoniae* or *N meningitidis*. There are, however, some strains (between 3% and 16%) of pneumococci that are relatively resistant to penicillin and ampicillin, necessitating greater dosages to sterilize the CSF. Furthermore, *Hemophilus* is causing more cases of meningitis in these older age groups, which necessitates the use of antibiotics other than penicillin. And as the number of high-risk patients—such as those who are immunocompromised, alcoholic, elderly, have had a neurosurgical procedure and so forth—increases, so does the number of cases of meningitis due to *Listeria* (ampicillin is recommended) or Gram-negative organisms. The third-generation cephalosporin antibiotics—that is, cefotaxime, ceftriaxone and moxalactam—are very active against

Gram-negative bacilli and they reach significant CSF concentrations. Thus, these newer cephalosporins are the agents of choice for the treatment of Gram-negative bacillary meningitis.

Caution is necessary to properly treat bacterial meningitis with the third-generation cephalosporins. First, for the treatment of pneumococcal or meningococcal meningitis, penicillin or chloramphenicol remain the recommended antibiotics. Second, other Gram-positive cocci, in particular *Staphylococcus aureus*, are resistant to the newer cephalosporins. Third, the use of chloramphenicol apparently interferes with the activity of cefotaxime, which led to treatment failure in a patient with meningitis due to *Klebsiella*. Chloramphenicol may similarly interact with other third-generation cephalosporins. Fourth, not all Gram-negative species and not all organisms of any particular species are sensitive to these agents. For example, there are case reports of *E coli* resistance to moxalactam. And most *Pseudomonas* strains are resistant, as are all *Acinetobacter*, enterobacter and enterococci. Finally, as mentioned previously, *Listeria* infections should be treated with ampicillin.

Gary P. Young, M.D.
Oakland, California

REFERENCES

Beam TR Jr: Cephalosporins in adult meningitis. Bull NY Acad Med May 1984, 60:380-393.

Bolan G, Barza M: Acute bacterial meningitis in children and adults—A perspective. Med Clin North Am Mar 1985, 69:231-241.

Klein JO, Feigin RD, McCracken GH Jr: Report of the task force on diagnosis and management of meningitis. Pediatrics 1986, 78:959-982.

Nelson JD: Emerging role of cephalosporins in bacterial meningitis. Am J Med Aug 1985, 79:47-51.

Indications for Hyperbaric Oxygen Therapy

Hyperbaric oxygen therapy, whereby a patient breathes 100% oxygen at an atmospheric pressure greater than sea level, has been the mainstay in the treatment of decompression sickness and gas emboli in divers. It is also an emerging treatment for a number of other medical indications.

The Hyperbaric Oxygen Therapy Committee of the Undersea and Hyperbaric Medical Society has classified the uses of hyperbaric oxygen into "accepted" and "investigative" indications, with a "special category" for clinically controversial indications. Accepted indications are listed in the table, while the list of investigative indications can be found in the committee's report. For some conditions, such as prophylaxis for osteoradionecrosis, the use of hyperbaric oxygen is primary therapy, while for other indications it is adjunctive to other interventions, such as for chronic refractory osteomyelitis, where antibiotics and definitive surgical therapy must also be used. The adjunctive use of hyperbaric oxygen for thermal injuries remains controversial.

Table 1
ACCEPTED INDICATIONS FOR USE OF HYPERBARIC OXYGEN

Acute air or gas embolism
Carbon monoxide or cyanide poisoning
Crush injuries and compartment syndromes
Decompression sickness
Enhancement of healing in selected problem wounds, particularly in some diabetic wounds
Exceptional blood loss anemia
Clostridial gas gangrene
Necrotizing soft tissue infections, such as crepitant anaerobic cellutis, progressive bacterial gangrene, necrotizing fasciitis, nonclostridial myonecrosis and Fournier's gangrene
Chronic refractory osteomyelitis
Radiation necrosis of bone or soft tissue
Dental extraction from irradiated bone
Nonhealing of skin grafts or flaps
Actinomycosis

Newly established has been the ability of hyperbaric oxygen to statistically significantly reduce the development of osteoradionecrosis after tooth removal from previously irradiated jaws. There has been a reduction from 29.9% to only 5.4% in the development of the disorder when hyperbaric oxygen was used before and after the extraction, compared with a pencillin-treated study group. Extraordinary cost-savings were also shown.

Additional recent developments in the field are the demonstration of the effectiveness of hyperbaric oxygen for treating radiation-induced hemorrhagic cystitis and a new classification and staging system for osteomyelitis, to facilitate further study uniformity and allow the proper selection of patients for therapy.

Case selection is important in most of the listed categories, and early consultation with a physician experienced in the treatment of patients with hyperbaric oxygen should be sought.

Irving Jacoby, M.D.
San Diego

REFERENCES

Cierny G III, Mader JT, Penninck JJ: A clinical staging system for adult osteomyelitis. Contemp Orthopaedics May 1985, 10:17-37.

Hyperbaric Oxygen Therapy: A Committee Report, publication No 30CR (HBO). Bethesda, Md, Undersea and Hyperbaric Medical Society, 1986.

Marx RE, Johnson RP, Kline SN: Prevention of osteoradionecrosis: A radomized prospective clinical trial of hyperbaric oxygen versus penicillin. J Am Dent Assoc 1985, 111:49-54.

Weiss JP, Boland FP, Mori H, et al: Treatment of radiation-induced cystitis with hyperbaric oxygen. J Urol Aug 1985, 134:352-354.

Cardiopulmonary Resuscitation and Defibrillation

Every five or six years the American Heart Association convenes a national conference to revise and update the standards for cardiopulmonary resuscitation (CPR) and advanced cardiac life support. Such a meeting (the third since 1973) was held July 1985 in Dallas, and the standards and guidelines were published in *The Journal of the American Medical Association.* (A complete copy of the "Standards and Guidelines for Cardiopulmonary Resuscitation [CPR] and Emergency Cardiac Care [ECC]" may be obtained from local chapters of the American Heart Association.)

The new standards for CPR simplify the technique. First, one-person CPR will be emphasized for layperson CPR instruction. Second, ventilations will no longer be "stacked" but rather given as two sequential breaths over two to three seconds (1 to 1½ seconds per breath), and the use of four initial breaths has been dropped with two breaths being used throughout. Third, the rate of chest compressions has been increased to a rate of 80 to 100 per minute. The ratio of 15 compressions to 2 ventilations is maintained. For two-person CPR there should be a pause in chest compressions while ventilation occurs. The ratio of five compressions to one ventilation is maintained.

The new guidelines for advanced cardiac life support emphasize the importance of rapid defibrillation for ventricular fibrillation. For ventricular fibrillation the sequence consists of a 200-J defibrillatory shock, and if ventricular fibrillation persists, a second shock of 200 to 300 J and, if necessary, a third shock of as much as 360 J. Only then, if fibrillation persists, should pharmacologic therapy begin with the use of epinephrine and antiarrhythmics. Defibrillation, assuming a defibrillator is present, takes precedence over intubation, intravenous line placement and even CPR. The use of sodium bicarbonate is deemphasized and is merely considered rather than recommended well into the resuscitation. For asystole and electromechanical dissociation, the use of calcium has been eliminated.

Mickey Eisenberg, M.D.
Seattle

REFERENCES

Standards and Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC). JAMA 1986, 255:2905-2989.

Weisfeldt ML, Halperin HR: Cardiopulmonary resuscitation: Beyond cardiac massage. Circulation Sep 1986, 74:443-448.

Expanding the Use of Automatic External Defibrillators to Home and Community

The single most effective intervention in cardiac arrest occurring outside the hospital is early external defibrillation. The problem is that ventricular fibrillation is a very transient rhythm, lasting only a few minutes before it decays to asystole, from which virtually no one can be resuscitated. A major thrust in emergency medicine has been to develop ways to get a defibrillator to a patient in cardiac arrest as quickly as possible. Paramedics in mobile coronary care units were, in their original conception, "invented" so that they could carry defibrillators to such patients. Next, emergency medical technicians (EMTs), less well trained than paramedics but more than ten times as plentiful, were trained to identify ventricular fibrillation and to deliver a defibrillatory shock when they discovered a patient in that rhythm. The problem still remains, however, that emergency personnel can take a long time to get a defibrillator to a patient's side.

The rationale behind early defibrillation strongly suggests that the immediate witnesses of an arrest, bystanders, family members and colleagues at work should also be given defibrillators. Unfortunately, interpreting cardiac rhythms and operating a sophisticated medical device are beyond the ability of most laypersons and even some less-experienced emergency personnel.

Since the late 1970s several companies have worked to develop portable battery-powered defibrillators that could automatically analyze a patient's cardiac rhythm for the presence of ventricular fibrillation. If fibrillation occurs, the devices, called automatic external defibrillators, charge their capacitors and deliver an electrical countershock.

At this time, these defibrillators are being evaluated in several settings. Researchers have studied their use in the homes of patients who have survived either a cardiac arrest or a myocardial infarction. Their work has confirmed that family members of a high-risk patient can be successfully trained to operate an automatic external defibrillator, that they can retain this knowledge over long periods of time and that they will successfully use the device when an actual cardiac arrest occurs.

Fully trained paramedics can diagnose dysrhythmias, insert intravenous lines, administer medication and carry out defibrillation. While lesser-trained EMTs generally lack these skills, they are much more numerous than paramedics and can usually reach a patient more rapidly. The use of automatic external defibrillators by EMTs may partially compensate for their lesser amount of training because rhythm recognition is done by the device, rather than by emergency personnel. Two large controlled trials have confirmed the value of their use by EMTs.

Placing automatic external defibrillators in public settings is another strategy to achieve rapid defibrillation after a cardiac arrest. Researchers are currently conducting evaluations of such placement in senior centers, community health clubs, high-rise office buildings and large corporate settings.

Methods to deal with medical emergencies in the air have remained controversial and hotly debated. One major airline has embarked on a two-year evaluation of the use of automatic defibrillators by trained cabin-crew members in wide-body aircraft that fly international routes.

During the next decade, automatic defibrillators will become smaller, less expensive, safer and more accurate. They are clearly a device of the future.

Richard O. Cummins, M.D.
Seattle

REFERENCES

Cummins RO, Eisenberg MS, Litwin PE, et al: Automatic external defibrillators used by emergency medical technicians: A controlled clinical trial. JAMA 1987, 257:1605-1610.

Cummins RO, Eisenberg MS, Hearne TR, et al: Community responder use of automatic external defibrillators: Ease of training and retention of skills (Abstr). Am J Emerg Med 1986, 4:417.

Moore JE, Eisenberg MS, Andresen E, et al: Home placement of automatic external defibrillators among survivors of ventricular fibrillation. Ann Emerg Med 1986, 15:811-812.

Stults KR, Brown DD, Kerber RE: Efficacy of an automated external defibrillator in the management of out-of-hospital cardiac arrest: Validation of the diagnostic algorithm and initial clinical experience in a rural environment. Circulation 1986, 73:701-709.

Weaver WD, Copass MK, Hill D, et al: Development and widespread use of automatic external defibrillators (Abstr). Am J Emerg Med 1986, 4:424-425.

Advances in Radiologic Evaluation of Acute Spinal Cord Compression

Acute spinal cord compression in cancer patients is a true oncologic emergency. Without prompt intervention, potentially reversible neurologic damage will become permanent. Although direct parenchymal metastatic invasion of the spinal cord is rare, most cancer patients with cord compression present with spinal epidural metastases from the direct spread of vertebral or paravertebral lesions.

While neurologic examination and plain radiographs help to localize the level of the lesion, myelography, using either iophendylate (oil-based), metrizamide (water-soluble) or both as contrast, has been the standard radiologic examination. By using sagittal projection, several levels of obstruction can be visualized simultaneously and spot radiography limits motion artifact. The procedure is invasive, however, often requiring two punctures above and below the lesion to define the extent of obstruction. As only the outline of the soft tissue is visualized, the actual extent of a paravertebral lesion cannot be seen.

The development of high-resolution computed tomography (CT) allows for greater distinction between bone and soft tissue. The transverse view of the spine provides visualization of the perispinal area, allowing a view not only of impingement of the cord but also the extent of epidural metastases. The procedure is noninvasive and requires no contrast material, but within the confines of the spinal canal there is poor resolution between the cord and the subarachnoid space.

A solution to this problem is the use of water-soluble metrizamide contrast with computer-assisted myelography. This improves differentiation between the soft tissues, and transverse views better show the extent of cord compression than does myelography. As smaller amounts of metrizamide are detected by CT, what appears to be a complete block on routine myelography is often shown to be incomplete with computer-assisted myelography, thus obviating the need of a second puncture above the lesion. This greater sensitivity also allows for the use of smaller doses of metrizamide, particularly important in evaluating upper cord lesions that have the added risk of seizures due to contrast material.

Still, the use of computer-assisted myelography is not without its disadvantages. The procedure is invasive, requires contrast, exposes a patient to radiation and is limited to transverse projection.

Although in its relative infancy, magnetic resonance imaging (MRI) provides a new and in many ways superior evaluation of cord compression. The spine can be seen in both the sagittal and transverse projections. Abnormalities in cord diameter and contour are easily seen. Differences in soft-tissue densities are better delineated. As such, MRI is as accurate as CT and myelography in showing the cranial and caudal levels of obstruction without the invasive use of contrast material or exposure to radiation.

MRI, however, is not without its limitations. Slice thickness, although improving, is still quite large compared with CT. The procedure is relatively lengthy, and patient handling is more difficult in the confined spaces of MRI. Patients requiring advanced life-support equipment or cardiac pacemakers cannot be studied. Nevertheless, as technologic advances correct these limitations, MRI shows great potential as the diagnostic tool of choice in the evaluation of spinal cord compression.

Robert L. Galli, M.D.
Sylmar, California

REFERENCES

Barrow DL, Wood JH, Hoffman JC Jr: Clinical indications for computer-assisted myelography. Neurosurgery Jan 1983, 12:47-57.

Paushter DM, Modic MT, Masaryk TJ: Magnetic resonance imaging of the spine: Applications and limitations. Radiol Clin North Am Sep 1985, 23:551-562.

Wang AM, Lewis ML, Rumbaugh CL, et al: Spinal cord or nerve root compression in patients with malignant disease: CT evaluations. J Comput Assist Tomogr Jun 1984, 8:420-428.

Computed Tomography Versus Peritoneal Lavage in Blunt Abdominal Trauma

Peritoneal lavage has for years been a useful technique in the evaluatin of blunt abdominal trauma. Recently, however, computed tomography (CT) has gained favor and in many institutions has replaced lavage as the most frequently used modality.

Three questions are crucial to the evaluation of blunt abdominal trauma: (1) is blood present? (2) how much blood is present? (3) what organs are damaged? Tomography is superior to lavage in answering questions 2 and 3 and has some advantages relative to question 1.

Is blood present? Lavage is very sensitive in diagnosing intraperitoneal blood. Many studies have indicated that CT is equally sensitive, although some recent articles discussed below have questioned its reliability. There is no question, however, that lavage does ot detect retroperitoneal hemorrhage, whereas CT does. Moreover, unlike

CT, lavage may yield false-positive results due to either a traumatic tap or dissection of retroperitoneal blood into the peritoneal cavity through torn fascial planes.

How much blood is present? While lavage may detect intraperitoneal bleeding, it may not be very accurate in measuring the amount of free blood. Many clinically stable patients who might undergo laparotomy based on abnormalities detected by lavage can avoid surgical intervention if intraperitoneal bleeding is estimated to be relatively minor based on CT findings. In two studies, 60% of patients with liver lacerations and 79% of children with splenic injury were spared laparotomy.

What organs are damaged? Lavage offers no information regarding the specific organ(s) damaged. CT is quite sensitive and specific for the most frequently injured organs: liver, spleen and kidney. It is less sensitive for bowel and pancreatic trauma, but can often detect injuries to these organs as well.

Tomography does require time and is indicated only for patients who are hemodynamically stable. Unstable patients with obvious abdominal injuries should be taken directly to the operating room. Results of a previous lavage may be useful in confirming free intraperitoneal bleeding in such patients if there is any question.

While a number of studies have indicated nearly 100% sensitivity of CT in detecting clinically significant intraperitoneal bleeding, several recent articles have reported dramtically less sensitivity. The discrepancy between results from reputable trauma centers is disturbing and indicates that the issue has not yet been resolved. It is suggested that relying on CT alone in institutions with relatively little experience is not advisable. Yet the reports from some major trauma centers suggest that in hospitals with sufficient volume, CT may prove to be the most useful method for evaluating blunt abdominal trauma. Even one of the articles casting doubt on the reliability of CT states that if experienced CT interpretation is immediately available to determine the need for laparotomy, CT may be equal in sensitivity to lavage. Regardless of how the issue is ultimately resolved, however, there is no question that peritoneal lavage will always have an important role.

Michael J. Bresler, M.D.
Stanford, California

REFERENCES

Fabian TC, Mangiante EC, White TJ, et al: A prospective study of 91 patients undergoing both computed tomography and peritoneal lavage following blunt abdominal trauma. J Trauma Jul 1986, 26:602-608.

Federle MP: Computed tomography of blunt abdominal trauma. Radiol Clin North Am Sep 1983, 21:461-475.

Goldstein AS, Sclafani SJA, Kupferstein NH, et al: The diagnostic superiority of computerized tomography. J Trauma Oct 1985, 25:938-946.

Marx JA, Moore EE, Jorden RC, et al: Limitations of computed tomography in the evaluation of acute abdominal trauma: A prospective comparison with diagnostic peritoneal lavage. J Trauma Oct 1985, 25:933-937.

Peitzman AB, Makaroun MS, Slasky BS, et al: Prospective study of computed tomography in initial management of blunt abdominal trauma. J Trauma Jul 1986, 26:585-592.

Digoxin-Specific Fab Fragments

The development of digoxin-specific antibodies has provided a significant therapeutic option for the treatment of digitalis intoxication. Hitherto experimental and available only at a limited number of centers, digoxin-immune Fab (Digibind) has been commercially released within the past year. The antibodies are produced by immunizing animals with digoxin coupled to a protein carrier, removal of serum, enzymatic digestion of the immune complex and separation of the digoxin-specific Fab fragments. Administered intravenously, the fragments bind to digoxin, rendering it pharmacologically inactive.

Fab fragments should be administered to a patient with digoxin or digitoxin intoxication who exhibits serious cardiac rhythm disturbance, hyperkalemia or both. Mild to pronounced hyperkalemia is typically present in acute digitalis intoxication. The standard management of acute drug ingestion and antidysrhythmic management should be initiated until the immune fragments can be given. Therapy is considered successful if the rhythm disturbances cease and hyperkalemia resolves. Clinical trials have described remarkable success with the use of antibody fragments, with reversal of toxicity usually occurring within minutes to hours.

No notable side effects, adverse effects or hypersensitivity reactions have been reported following administration of Fab fragments. There is, however, limited experience with reexposure of patients to these agents. In patients with adequate renal function, the digoxin-Fab complex is fairly rapidly eliminated by glomerular filtration, with a half-life of about 16 to 20 hours. Once antibody fragments are administered, serum digoxin determinations become invalid as indicators of a patient's course because inactive, antibody-bound digoxin is measured.

The contents of a single vial of antibody fragments will bind approximately 0.6 mg of digoxin. The amounts required in treatment will vary with the quantity of digitalis ingested. An average of 12.5 vials per patient has been used in several major series. It has been recommended that 25 vials be stored at the treatment center.

George Sternbach, M.D.
Stanford, California

REFERENCES

Cole PJ, Smith TW: Use of digoxin-specific Fab fragments in the treatment of digitalis intoxication. Drug Intell Clin Pharm Apr 1986, 20:267-270.

Wenger TL, Butler VP Jr, Haber E, et al: Treatment of 63 severely digitalis-toxic patients with digoxin-specific antibody fragments. J Am Coll Cardiol 1985, 5(suppl A):118-123A.

Zalcberg JR: Monoclonal antibodies to drugs: Novel diagnostic and therapeutic reagents. Pharmacol Ther 1985, 28:273-285.

ADVISORY PANEL TO THE SECTION ON EMERGENCY MEDICINE

Daniel D. Whitcraft, M.D.
Advisory Panel Chair
CMA Scientific Board Representative
Long Beach

Ellen Taliaferro, M.D.
CMA Section Chair
Bakersfield

Mark C. Smedley, M.D.
CMA Section Secretary
Sacramento

Stephen J. Groth, M.D.
CMA Section Assistant Secretary
Huntington Beach

Donald Minesinger, M.D.
Loma Linda University

Michael Eliastam, M.D.
Stanford University

Robert W. Derlet, M.D.
University of California, Davis

Kym Salness, M.D.
University of California, Irvine

Jerome Hoffman, M.D.
University of California, Los Angeles

Irving Jacoby, M.D.
University of California, San Diego

Frank Lewis, M.D.
University of California, San Francisco

Gail Anderson, M.D.
University of Southern California

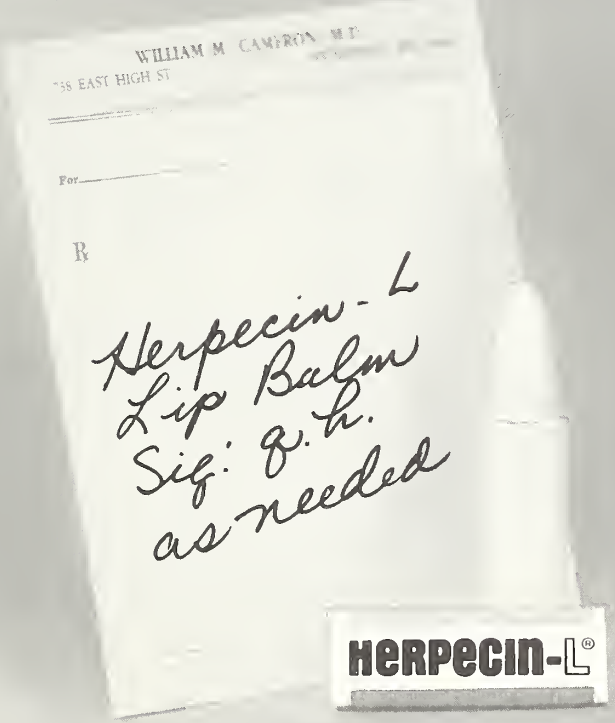
Larry Bedard, M.D.
Sausalito

Richard Gillespie, M.D.
Santa Rosa

Michael J. Bresler, M.D.
Section Editor
Stanford University

William J. Koenig, M.D.
Long Beach

Dx: recurrent herpes labialis



"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough."** DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits."** MD, FL

"Used at **prodromal symptoms . . .** blisters **never formed . . .** remarkable." DH, MA

"(In clinical trials) **. . . response** was **dramatic. HERPECIN-L . .** proven **far superior."** DDS, PA

"All patients claimed **shorter duration . . .** at **prodromal symptoms . . .** HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

A Multidisciplinary Conference on

SLEEP DISORDERS MEDICINE

Wednesday, October 28, 1987

All physicians are likely to encounter patients with sleep disorders. Sleep disorder medicine involves otolaryngology, neurology, internal medicine, cardiology, pulmonary medicine, psychology, psychiatry, urology and pediatrics. The aim of this conference is to teach physicians how to evaluate and treat sleep disorders. Heading the faculty will be Christian Guilleminault, M.D., editor of Sleep, and Wallace Mendelson, M.D., recently Chief, Section of Sleep Studies at the National Institute of Mental Health, who are two of the most knowledgeable people in the field of sleep disorders medicine.

For further information and registration please call or write:

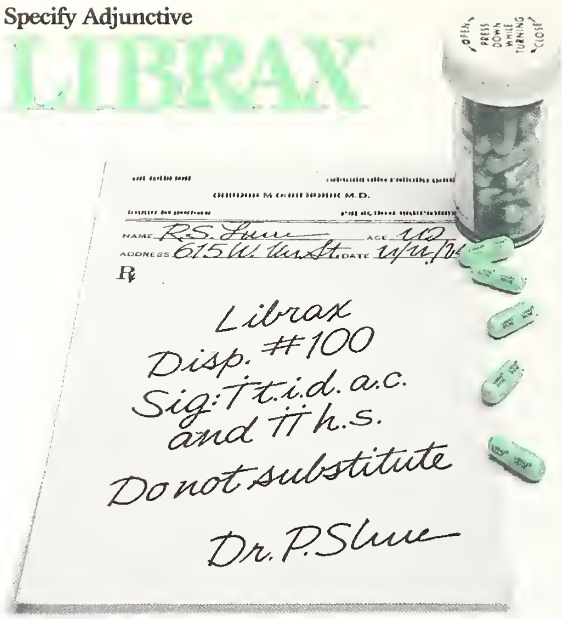
Robert Watson, Ph.D.
New Haven Sleep Disorders Center
100 York Street
New Haven, CT 06511
(203) 776-9578

"SELLING PRACTICES IS OUR BUSINESS"

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping hundreds of doctors like yourself buy and sell their practices. We guide you through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902


Specify Adjunctive
LIBRAX

NAME R.S. Luu AGE 42
ADDRESS 615 W. Un St. DATE 11/11/

℞

Librax
Disp. #100
Sig: T t.i.d. a.c.
and TT h.s.
Do not substitute
Dr. P. Slue

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium bromide

Please consult complete prescribing information, a summary of which follows:

* **Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows:
"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.
Final classification of the less-than-effective indications requires further investigation.

Contraindications: Glaucoma; prostatic hypertrophy, benign bladder neck obstruction; hypersensitivity to chlordiazepoxide HCl and/or clidinium Br.
Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) reported following discontinuation of the drug.
Usage in Pregnancy: **Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.**
As with all anticholinergics, inhibition of lactation may occur.
Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship not established.
Adverse Reactions: No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated; avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered: isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction; changes in EEG patterns may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

P.I. 0186

ROCHE®
Roche Products Inc.
Manati, Puerto Rico 00701

To insist
on the brand,
be sure
to write
"No Substitution"
on your prescription.

When brain and bowel conflict…

It's time for the Peacemaker.

In irritable bowel syndrome* anxiety can aggravate intestinal symptoms, which may further intensify anxiety — a distressing cycle of brain/bowel conflict. Librax intervenes with two well-known compounds. The Librium® (chlordiazepoxide HCl/Roche) component safely relieves anxiety. And Quarzan® (clidinium bromide/Roche) provides antisecretory and antispasmodic action to relieve discomfort associated with intestinal hypermotility.

Dual action — for peace between brain and bowel. Because of possible CNS effects, caution patients about engaging in activities requiring complete mental alertness. Specify Adjunctive

LIBRAX®

Each capsule contains 5 mg chlordiazepoxide HCl
and 2.5 mg clidinium bromide

*Librax has been evaluated as possibly effective as adjunctive therapy in the treatment of peptic ulcer and the irritable bowel syndrome.

Copyright © 1987 by Roche Products Inc. All rights reserved. Please see summary of prescribing information on adjacent page.

Abstracts: Second Annual Research Day

DANBURY HOSPITAL

Introduction

The second Danbury Hospital Research Day was held on May 13, 1987. Thirty abstracts were submitted. Twelve were selected for presentation and six others for posters. Of 62 co-authors, 15 were residents or fellows. These efforts serve to expand the traditional purposes of community hospitals beyond patient care and continuing education. Inquiring minds no longer seek only larger academic institutions; bright physicians have settled in smaller communities that support clinical practice, teaching opportunities, and clinical investigation. The beneficiaries are patients, the involved educational programs, and our institution wherein there are happy feelings of satisfaction and anticipation of next year's competition.

Joseph L. Belsky, M.D., Chairperson
Research Day Committee

Experience in Treating Elderly Patients

Oral ciprofloxacin was used to treat 28 elderly patients at a dose of 750 mg bid. There were 18 females and seven males with a mean age of 76. The range of length of therapy was seven to 58 days with a mean of 14 days in the 25 patients who were evaluated. The site of infection was the urinary tract in 12, respiratory in nine, skin and soft tissue in three and bone in one. Causative pathogens isolated were *P. aeruginosa* in 14, *E. coli* in seven, *H. influenzae* in four, *S. aureus* in two, *S. faecalis* in two, *Citrobacter* in three, *P. mirabilis* in two, *M. morganni* in one, *Acinetobacter* in one, *E. cloacae* in one, and *B. catarrhalis* in one. A clinical cure was achieved in 18, improvement in four, and in three indeterminate. Bacteria was eradicated in 22, markedly reduced in two, and persisted in three; one patient with a UTI relapsed. Adverse effects occured in 11 patients (28%); in one therapy was stopped. The adverse reactions were gastrointestinal in nine and neurologic in two. Twelve laboratory abnormalities were seen in ten patients, with eosinophilia in seven, thrombocytosis in two, elevation of SGOT in three.

Oral ciprofloxacin appears to be a safe, effective alternative to parenteral therapy for organisms such as *Pseudomonas* in elderly population.

PAUL B. IANNINI, M.D., Associate Clinical Professor Medicine, Yale University School of Medicine; MARK J. KUNKEL, M.D., Assistant Clincal Professor Medicine, Yale University School of Medicine, and GARY S. SCHLEITER, M.D., Clinical Instructor Medicine, Yale University School of Medicine.

Infectious Disease Section, Danbury Hospital.

Comparative Antibiotic Sensitivity of *Pseudomonas Aeruginosa* and *Klebsiella Pneumoniae* to Azlocillin, Mezlocillin, and Piperacillin in an Acute Care Community Hospital

The development of the fourth generation of penicillins, namely, azlocillin, mezlocillin, and piperacillin, provides a group of antibiotics which are less toxic and more effective than many other antibiotics. Since the activity of these three antibiotics is similar, it is not cost effective to stock all three in a hospital pharmacy. The problem is thus to determine which of the three antibiotics is the most effective against infection in a specific hospital population.

Two hundred isolates of *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* were obtained from inpatients in the Danbury Hospital. These isolates were tested against azlocillin, mezlocillin, and piperacillin to determine which antibiotic was the most effective against these two bacteria. The method for testing the isolates was a standardized microdilution technique.

The minimum inhibitory concentration of each antibiotic was recorded for each organism isolated. Charts and graphs depicting the cumulative percent susceptibility of the organisms to azlocillin, mezlocillin, and piperacillin were developed.

The study reveals that piperacillin is the most effective fourth generation penicillin against *K.pneumoniae*, while piperacillin and azlocillin are both equally effective against *P.aeurginosa*.

LAURA A. TICHEY, M.S., M.T., (ASCP) and PAUL B. IANNINI, M.D., Associate Clinical Professor of Medicine, Yale University School of Medicine.

Departments of Laboratory Medicine and Infectious Disease, Danbury Hospital.

Five vs. Ten Days of Penicillin V Therapy for Streptococcal Pharyngitis

To determine the effectiveness of a short (five-day) course of penicillin V potassium therapy, 172 patients with group A β-hemolytic GK streptococcal (GABHS) pharyngitis were randomly assigned to receive 250 mg of penicillin V potassium three times daily for either five or ten days. The patients in the two treatment groups were comparable with respect to clinical findings, compliance, and serologic response to GABHS. A bacteriologic treatment failure was defined as the presence of the same serotype of GABHS in the follow-up as in the initial throat culture, and occurred in 13 (18%) of the 73 patients in the five-day treatment group and six (6%) of the 99 patients in the ten day treatment group. These findings support the current recommendation for a full ten days of oral penicillin V therapy for the treatment of GABHS pharyngitis.

MARTIN F. RANDOLPH, M.D., Clinical Professor Pediatrics, University of Connecticut School of Medicine; MICHAEL A. GERBER, M.D.; JULIE CHANATRY; LAURA WRIGHT; KATHLEEN DeMEO; EDWARD L. KAPLAN, M.D.

Department of Pediatrics, Danbury Hospital and Department of Pediatrics, University of Connecticut School of Medicine.

Exclusion of HIV Antibody Positive Donors does not Decrease the Number of Donors with Elevated ALT Levels

Blood donor medical history standards have recently undergone extensive revision, and donor testing for HIV antibody has been introduced to reduce the incidence of transfusion transmitted HIV infection. We studied the effect which these changes had in the number of donors with elevated alanine aminotransferase (ALT) values.

Group 1 donors were tested before (July 1984 to April 1985, N=490), and group 2 after (May 1985 to July 1986, N=980) the implementation of HIV testing. ALT levels in donors were identified using four different cut-offs by selecting standard deviations (SD) around the log mean ALT. The results are shown in the table.

Alanine Aminotransferase (ALT) Levels in Blood Donors before (Group 1) and after (Group 2) HIV Antibody Testing

Log Mean	*ALT Value*	*Group 1 (N=490)*		*Group 2 (N=980)*		*P*
+	≥	#	%	#	%	
1.00 SD	37	71	14.5	108	18.4	NS
2.00 SD	61	16	3.3	22	2.2	NS
2.25 SD	70	12	2.4	12	1.2	NS
2.50 SD	79	6	1.2	6	0.6	NS

There were no statistically significant differences between the two groups. Percentages of donors manifesting elevated ALT values in both groups are similar to those previously reported in the literature.

Our data, so far, show that the recent changes in the donor medical history standards and implementation of HIV antibody testing has resulted in no significant changes in the number of donors with elevated ALT values. Therefore, the risk factors for NANB hepatitis, and the HIV infection in blood donors are likely to be independent. Further studies are continuing to confirm our findings.

M. GUDINO, M.D., Fellow, Clinical Pathology; R. KRANWINKEL, M.D., Assistant Clinical Professor of Pathology, Yale University School of Medicine, New Haven, CT. R. KAKAIYA, M.D., Associate Professor, Laboratory Medicine, University of Connecticut School of Medicine.

Department of Laboratory Medicine, Danbury Hospital, Danbury, and American Red Cross, Farmington.

Can Coronary Risk Factors Be Modified by a Community Educational Project?

At no personal expense, Ridgefielders were given an opportunity to modify their coronary risks. Four hundred thirty-seven individuals had their coronary risks scored. In addition to the questionnaire and blood pressure determinations, finger-stick cholesterol and triglyceride determinations were performed. A symposium was held at the Ridgefield YMCA in May 1986. Two hundred fifty of the participants attended. Nationally known guest speakers from the Framingham Study, Georgetown University, and New York University led the faculty of twenty physicians, four dieticians, and four behaviorists. Lectures and small group discussions were held. A group of 75 of the high-risk candidates were selected for follow-up.

They were seen at six-week intervals for six months with four sets of lipids determined while on a three-staged diet of 300 mg, 200 mg and 100 mg cholesterol regimen of blood lipid lowering through diet and behavior modification. The Refletron analyzer determined lipid levels on finger-stick blood within three minutes. The promptness of these results led to immediate institution of modification techniques. One physician's assistant trained in behavior modification and dietetics conducted the follow-up testing; other coronary risk factors were modified on an individual basis as well. Thirty-two of those in the study showed significant improvement with lipid lowering, defined as a 15% lowering of cholesterol. Ten individuals dropped out of the study, two having moved from the area.

After 10 months a follow-up survey has been instituted to determine if the effectiveness of the program is sustained.

There is a questionnaire in process of preparation which it is hoped, will determine the usefulness and cost effectiveness of sponsoring a program such as this in a community of a high socio-economic level. It is hoped that through this study whole families will become self-reliant in this aspect of their health care; a spirit of volunteerism already has been engendered in the participants.

JOSEPH BUCHMAN, M.D. and DAVID DEVRIES, P.A.
Department of Medicine, Danbury Hospital.

A Study of Hospital Admissions and Emergency Room Visits of Diabetic Patients Educated by the Team Approach

Studies have shown that 10% of all hospital admissions are diabetes-related. Many of these are due to inadequate patient self-care skills and knowledge associated with lack of diabetic teaching. The diabetic teaching program was established in 1980 at Danbury Hospital in order to provide a team approach for counseling the newly diagnosed diabetic. The program consisted of lifestyle assessment, counseling, and evaluation of skills and knowledge acquired. The program was conducted by a nurse clinician and dietition specifically trained in the field of diabetes education.

A retrospective chart audit was conducted on diabetics newly diagnosed while in the hospital to determine their readmission rate and emergency room visit rate three years after the initial enrollment in the diabetes teaching program. This was compared with the three-year admission rate and emergency room visit rate of newly-diagnosed diabetics from 1975 to 1980 who received traditional counseling by hospital personnel during their initial admission for uncontrolled diabetes.

Hospital readmissions for Type I and Type II diabetics in the diabetic teaching program decreased by 42% and 36% respectively. The hospital length of stay was decreased by two days in patients who could be discharged to outpatient counseling. Emergency room visits for the diabetic teaching program Type II diabetics decreased by 10%. Admissions for infections were much fewer in all diabetics who were in the teaching program.

Our findings indicate that a diabetes teaching program utilizing a team approach can decrease hospital admissions, length of stay, and emergency room visits.

ELISSA N. SILVIO, B.S., R.N. Diabetes Nurse Clinician and JOSEPH L. BELSKY, M.D., Clinical Professor of Medicine, Yale University School of Medicine.

Department of Endocrinology and Metabolism, Danbury Hospital.

Analysis of Charges Over a 12-Month Period for DRG Number 89

Diagnostic Related Groups (DRGs) have affected the allocation of hospital resources, delivery of services, and future planning. It has been imperative for physicians to reassess their standard practice of care, but scant literature is available showing utilization experience within a single DRG. We analyzed DRG number 89, Simple Pneumonia and Pleurisy, to determine what were its major charges for the period of October 1984 to September 1985.

The study period involved 212 admissions with an average length of stay (LOS) of 10.8 days and estimated total loss of $192,176. The major charge categories were room accommodation (30%), laboratory (22%), pharmacy

(11%), and respiratory (9%). Room charges were influenced by LOS, with negligible effect by ICU days (estimated average of 0.3 days). Laboratory charges were dominated by three major items; SMA-6 (26%), arterial blood gases (10%), CBC (5%). Pharmacy charges reflected antibiotic usage (74%). Respiratory had the major charge as aerosols (18%) but with a large miscellaneous grouping including oxygen, patient evaluation, incentive spirometry, etc.

Seventy-two percent of hospital charges for DRG number 89 during the study period were dominated by four categories. As such data is generated, programs of medical education can be established to review utilization of diminishing resources and insure cost-efficient patient care.

CARLOS FRAGOSO, M.D., Clinical Instructor Medicine, Yale University School of Medicine; and RONALD DANDURAND, M.D., PGY-II.

Department of Medicine, Danbury Hospital.

Chronic Placental Inflammation. Maternal and Neonatal Correlations at Danbury Hospital

The association of chronic placental inflammation (CPI) with various forms of poor pregnancy outcome has been reported by many authors. CPI includes chronic villitis (CV) and hemorrhagic endovasculitis (HEV). The clinical associations include intrauterine growth retardation, fetal distress, still-birth, and recurrent poor pregnancy outcome. These factors have not been studied in concert, nor in a large sample drawn from a well-defined, low-risk pregnant population. The incidence of CPI in placentas of complicated gestations in this population was determined, and the associations between CV, HEV, and various maternal and neonatal factors were sought. The incidence of first pregnancy, maternal smoking, pre-eclampsia, poor obstetric history, low birth weight offspring, Apgars §5 @ one minute, passage of meconium/fetal distress, and stillbirth were all significantly increased in the CPI group over the incidence of these factors in 2,407 consecutive pregnancies delivered at this hospital. CV and HEV, and the presence of both lesions showed differing patterns of association. This suggests that the mechanisms of CV and HEV associated feto-placental compromise may differ.

C. SALAFIA, M.D., Clinical Instructor Pathology, Yale University School of Medicine; C.A. WEIGL, B.S.; A.A. HERMAN, Ph.D., Epidemiology Fellow, Sergievsky Center, Columbia University College of Physicians and Surgeons.

Department of Laboratory Medicine, Danbury Hospital, and the G.H. Sergievsky Center, Columbia University.

The Association of Acute Inflammation of the Placental Membranes and Fetal Bradycardia during Labor

Fetal distress is a frequent event during labor and delivery in an otherwise uncomplicated pregnancy, and implies a disturbance of fetal metabolic status which may cause damage to the baby. At present, abnormal fetal heart rates are considered to reflect primarily umbilical cord compression, or "placental insufficiency," and are thus felt to be related to the duration and nature of the labor process only. This study examines 100 cases in which abnormal fetal heart rates were noted and 50 cases in which normal fetal heart rates were observed. Cases and controls were matched for the duration of hours of membrane rupture prior to delivery, parity, and location of care, to provide an equivalent risk of developing ascending infection in the two groups. Fetoplacental weight ratio and the presence of other placental diseases were also considered. The presence of acute infection in choriodecidua was associated with increased risk of fetal bradycardia ($p=0.0015$). No other placental factors were associated with increased risk of fetal bradycardia. The effects of acute infection appeared to be primarily mediated via amniotic fluid infection, since the presence of umbilical or chorionic vasculitis was the most significant predictor of fetal bradycardia.

We suggest that "cord compression" or "placental insufficiency" patterns of fetal bradycardia may be indicators of subclinical amniotic fluid infection. The inflamed amniotic fluid could alter fetal metabolism via effects on the pulmonary or gastrointestinal systems.

C.M. SALAFIA, M.D., Clinical Instructor Pathology, Yale University School of Medicine; H. MANGAM, C.A. WEIGL, B.S.; and G.J. FOYE, M.D, Assistant Clinical Professor of Obstetrics and Gynecology, Yale University School of Medicine.

Departments of Laboratory Medicine and Obstetrics and Gynecology, Danbury Hospital.

Placental Villi Contain Different Subpopulations of Accessory Cells

Accessory cells (macrophages/dendritic cells) are present in the various elements of the maternal-fetal unit (MFU; placenta, membranes, and decidua). These cells may contribute to the maintenance of normal pregnancy by virtue of their various immunoregulatory functions, including phagocytosis, antigen trapping, processing, and, presentation, and the release of modulatory cytokines. Definition of the nature and functions of the accessory cells in the MFU could enhance our understanding of normal pregnancy and, more importantly, of associated abnormalities. A prerequisite is knowledge of the phenotypes and distribution of the various accessory cells in the MFU. We have analyzed the antigenic phenotypes and locations of accessory cells in first and third trimester chorionic villi using a large panel of monoclonal antibodies to macrophage (MO) associated antigens. Our data show, for example, that a few cells within the first trimester villi weakly express the class II MHC antigen, HLA-DR. By the third trimester, the number and staining intensity of HLA-DR+ cells increased significantly. Cells expressing a second class II MHC antigen, HLA-DQ, were not found in first trimester villi but were detected in the third trimester. Intravillous cells detected by the antibody MO-2 showed a similar increasing frequency with gestational age. In contrast, cells expressing the MO antigen identified by the antibody Mac-120 (Leu M2) were found in greater numbers in first than in third trimester villa. The results of these studies show that the placental villa contain different MO phenotypes, that these phenotypes are variably distributed, and that the proportion of some of these subpopulations varies with gestational age.

J. GOLDSTEIN, M.D., Pathology Fellow, Yale University School of Medicine; C.M. SALAFIA, M.D., Clinical Instructor Pathology, Yale University School of Medicine; P. BUCKLEY, M.D., Assistant Professor Pathology, Yale University School of Medicine.

Department of Laboratory Medicine, Danbury Hospital and Department of Pathology, Yale University School of Medicine.

Gestational Age Assessment in the First Trimester Using RBC Morphology in the Placental Villi

A series of uncomplicated pregnancies presenting during the first trimester for elective termination was assigned a gestational age using accepted ultrasonographic nomograms. Following termination by suction currettage, sections from the chorion frondosum were sent for routine histologic processing. The proportion of nucleated erythroblasts and anucleate erthyrocytes present in the placental circulation was visually estimated using a 10-point scale.

This histologic method of gestional age assessment correlated tightly with gestional age assessment by ultrasonography between seven and 12 weeks of pregnancy. A correlation was only seen between fetal erythrocyte (FRBC) morphology and fetal age as estimated by crown rump length. No correlation with FRBC and fetal age as estimated from the date of last menstrual period was seen.

These findings suggest the following:

1. The maturation of RBC's follows a course which tightly correlated with gestational age.
2. An assessment of RBC morphology, and thus an estimate of gestional age, can be provided using routine histopathologic techniques, and study of the placenta only.
3. This tool may provide additional data in cases of spontaneous pregnancy loss, as to time cessation of fetal development, or fetal death.

C.M. SALAFIA, M.D., Clinical Instructor of Pathology, Yale University School of Medicine; C.A. WEIGL, B.S.; A.A. HERMAN, Ph.D., Epidemiology Fellow, Sergievsky Center, Columbia University College of Physicians and Surgeons.

Department of Laboratory Medicine, Danbury Hospital, and the G.H. Sergievsky Center, Columbia University College of Physicians and Surgeons.

Correlation of Villous and Decidual Histology with Karyotype

We asked the question: can histologic criteria be used to distinguish nonviable aneuploid, viable aneuploid and euploid miscarriage? Specific gross and microscopic evaluation included: the level of development of the conceptus, the viability of an embryo/fetus (assessed by placental circulation), villous morphology, an evaluation of regressive change of villous trophoblast, and the distribution of the invasive and endovascular trophoblast, 52 spontaneous abortions of under 20 weeks gestional age were karyotyped, and studied by routine light microscopy. The karyotypes were broken down as follows: 29 "normal" (euploid) karyotypes, 4 "viable" trisomies (including sex chromosome aneuploidy and viable structural rearrangements), and 10 "nonviable" trisomies, and 9 triploids/tetraploids.

No significant difference for any category could be found between all normal and all abnormal karyotypes taken as groups. No difference for any category could be found between all normal and all abnormal karyotypes taken as groups. No difference for any category could be found between all viable karyotypes and all nonviable karyotypes.

The following is suggested by this study:

1. By using the criteria of this study, karyotypic diagnosis cannot be made by routine light microscopy.

2. Early embryo death, as indicated by an absent or severely disrupted placental circulation, is not more frequent in nonviable aneuoploidies than in euploid pregnancy losses.

3. Trophoblast invasion occurs in apparently equal measure in euploid and aneuploid pregnancies, as did decidual thromboses, vasculitis and decidual necrosis. This suggests that trophoblast invasion will progress independently of abnormality of karyotype, and/or presence of embryo. Second, extent of early trophoblast invasion, and decidual vascular histology, is not altered in a clearly recognizable pattern in euploid miscarriages, a group thought to include pregnancies lost on a immunologic basis. These preliminary studies suggest that rejection of this early wave of trophoblast invasion does not play a role in euploid miscarriage.

C.M. SALAFIA, M.D., Clinical Instructor Pathology, Yale University School of Medicine; C.A. WEIGL, B.S.; A.A. HERMAN, Ph.D., Epidemiology Fellow, Sergievsky Center, Columbia University College of Physicians and Surgeons; H.E. WYANDT, Ph.D.

Department of Laboratory Medicine, Danbury Hospital, and the G.H. Sergievsky Center, Columbia University College of Physicians and Surgeons.

The Prevalence and Distribution of Acute Extraplacental Membrane Inflammation in Uncomplicated Term Deliveries

The tissues of 161 placentas from uncomplicated deliveries at term were examined for the prevalence and distribution of non-inflammatory degenerative changes, acute inflammation, and chronic inflammation of the amnion, chorion, decidua, chorionic plate, and umbilical cord. Eighty-seven percent of all cases showed acute inflammation of the decidua. In cases in which labor was followed by vaginal delivery, acute decidual inflammation was more frequent in the vicinity of the site of rupture (and cervical flora) than distant from this site. No such difference was seen in cases in which the site of rupture indicated the site of sterile surgical incision of the membranes. Acute inflammation was present in equal proportions at all weeks of gestation studied, and changes consistent with amniotic fluid infection were rare.

C.M. SALAFIA, M.D., Clinical Instructor Pathology, Yale University School of Medicine; C.A. WEIGL, B.S.; A.A. HERMAN, Ph.D., Epidemiology Fellow, Sergievsky Center, Columbia University College of Physicians and Surgeons.

Department of Laboratory Medicine and Obstetrics and Gynecology, Danbury Hospital and Department of Pathology and the G.H. Sergievsky Center, Columbia University College of Physicians and Surgeons.

Thrombolytic Therapy in Acute Myocardial Infarction:

Twelve Month Experience at Danbury Hospital Using Tissue Plasmingen Activator and Streptokinase

Coronary artery thrombosis is present in most patients with acute transmural myocardial infarction (MI). Administration of a thrombolytic agent usually restores coronary flow, limits myocardial infarct size, and decreases mortality.

Danbury Hospital has participated in the NIH-sponsored study, Thrombolysis in Myocardial Infarction (TIMI). Intravenous streptokinase (Sk) has also been given to patients with acute MI. In the TIMI trial, all patients receive intravenous tissue plasminogen activator (tPA). Some are subsequently randomized to undergo percutaneous transluminal coronary artery angioplasty (PTCA) and/or receive immediate intravenous metroprolol. Patients not eligible for the TIMI study often receive intravenous Sk. To date, 18 patients have been enrolled in the TIMI trial, and ten patients have received intravenous Sk.

In the TIMI trial, 77% receiving tPA met clinical criteria of reperfusion. Eleven of 15 patients undergoing coronary angiography had angiographic evidence of reperfusion. Of seven patients randomized to PTCA, three had lesions amenable to angioplasty, three underwent coronary artery bypass grafting (CABG), and one had neither. Of those randomized to medical therapy, five of eight patients eventually underwent PTCA and none had CABG. Data regarding reperfusion with streptokinase is pending at this time. Bleeding complications from tPA were minor. Sk caused one allergic complication and one instance of significant GI bleeding requiring transfusion.

Danbury Hospital's experience with thrombolytic therapy in the course of an MI has shown evidence of reperfusion, suggesting a reduction in myocardial infarction size. Complications were minimal, with the exception of two events involving Sk infusion. tPA is an effective and safe form of therapy in achieving reperfusion. The ultimate role of angioplasty or CABG as well as the impact of concomitant treatment with beta-blockers in the treatment of these patients will eventually be determined.

S. ROBERTS, M.D., PGY-I; C. FRAGOSO, M.D., Clinical Instructor, Yale University School of Medicine; A. MILLER, L.P.N.; G. CURNEW, M.D., PGY-III; T. GRAZIANO, M.D., PGY-III; D. COPEN, M.D., Associate Clinical Professor Medicine, Yale University School of Medicine; J. ALEXANDER, M.D., Associate Clinical Professor of Medicine, Yale University School of Medicine.

Department of Medicine, Danbury Hospital.

Changes in the Bone Mineral Content of the Radial Shaft and Lumbar Spine in Symptomatic Vertebral Osteoporosis

Osteoporosis, like most metabolic diseases, affects trabecular bone to a greater extent than cortical bone because of the higher turnover rate of the former. Osteoporotic fractures also occur more commonly at sites containing relatively large amount of trabecular bone. Measurement of bone mineral content in the appendicular skeleton has routinely been used in the past to assess the degree of osteoporosis; however, lately dual photon absorptiometry has become available to measure bone mineral content in the trabecular bone of the axial skeleton.

To test the sensitivity of both procedures under a "worst case" situation, we studied 20 symptomatic women with a strong suspicion of vertebral osteoporosis and at least one risk factor (post-menopausal, steroids or long-term dialysis). Each had dual photon (DP) measurement of L 2, 3, 4 using a Gd153 source. Single photon absorptiometry (SPA) was performed in 18/20 and a bone scan (BS) in 19/20. The DP results were abnormal (positive) in 17/20 (85%). However, SPA was positive in only 11/18 (61%) and the bone scans were compatible with vertebral collapse or other abnormalities in 15/19 (79%). Hence, in these symptomatic women, bone scan was more effective than SPA; both were less diagnostic than DP measurements. Of interest, the 3 women with the negative (normal) DP measurement also had a normal SPA test as well as a normal BS. Of the 17 positive DP results in these symptomatic women, 15 had a positive BS.

These results provide strong data that DP is a more sensitive technique to assess the degree of osteoporosis and that in even "worst case" situations for vertebral osteoporosis, SPA assessment of the forearm alone may not be enough for routine diagnosis. Dual photon technique is therefore preferable because of its high sensitivity, minimal cost, and lack of significant ionizing radiation to the patient.

MINGZER TUNG, PGY-I, Nuclear Medicine; S.M. GUPTA, M.D., Associate Clinical Professor, Nuclear Medicine, University of Connecticut School of Medicine.

Department of Nuclear Medicine, Danbury Hospital.

Use of Quantitative Computed Tomographic Bone Scans to Study Osteoporosis Related to Prednisone Therapy

According to existing literature, the degree of osteoporosis produced by prednisone is proportional to the cumulative dose or the average daily dose. These conclusions were based on single photon absorption studies of the density of forearm cortical bone. They should be checked using the more sensitive methods now available, which can measure the more metabolically active trabecular bone in the spine where the main effects of prednisone occur. Quantitative computed tomography (QCT) selectively measures spinal trabecular bone density, avoiding the cortical bone in the vertebrae, and permitting correction for spurious effects caused by vertebral collapse or secondary osteoarthritis.

QCT data were obtained on a series of patients with rheumatic diseases, pulmonary disease, or endocrine abnormalities, who had received prednisone for periods up to 20 years. The bone mineral content was determined, adjusted for age effects on marrow fat, using a standard simulator to adjust for variations in energy output, and expressed in relation to the expected normal mean for the patient's sex and age; these data were compared to the cumulative total prednisone dose. Spinal bone mass was also measured by dual photon absorption in most of the same patients.

A decrease in the bone mass (expressed as percent of expected normal mean) was found in patients who received over 20 g of prednisone and who had no other reason for osteoporosis; these data are compatible with the prior literature suggesting an effect proportional to the cumulative dose. No definite effect of prednisone was detected in patients who received under 20 g of the drug. In the latter group, there were three patients (two female and one male) who had considerably lower bone mass than others who had received the same prednisone dosage; these patients had additional reasons for bone loss (early menopause without replacement estrogen, low calcium diet because of history of renal calculi, and probable hypogonadism in a male). In addition, the four patients with pulmonary disease studied (three female, one male) all had considerably lower bone mass at a given amount of prednisone than the patients with rheumatic diseases and no other risk factors for osteoporosis.

No such patterns were detectable by dual photon absorption, which showed moderately decreased bone density on almost all the patients studied, without correlation with prednisone dose, diagnosis or presence of other cause of osteoporosis.

These data point to the clinical value of assessing bone mineral density, and suggest that other causes of osteoporosis are more important than prednisone dose among patients receiving modest amounts of this drug.

ALFRED JAY BOLLET, M.D., Clinical Professor of Medicine, Yale University School of Medicine; KAREN COBLENS, M.D., PGY-I; DOUGLAS DIER, M.D., PGY-II; WILLIAM GOLDSTEIN, M.D.

Departments of Medicine and Radiology, Danbury Hospital.

Measurement of Radial Bone Mineral Content by Single and Dual Photon Absorptiometry: A Comparative Study

Quantitative assessment of bone mineral content is now widely used for the diagnosis and management of osteoporosis. Initially, only bone mass of the predominantly cortical bone of forearm could be measured by single photon absorptiometry, but now dual photon absorptiometry can provide measurement of the trabecular bone of spine, the site most commonly affected by osteoporosis. Often, importance of both measurements has also been emphasized. If one modality alone could measure both sites it would substantially reduce the time and expense of testing and maintaining two machines and would indeed be most welcome in this era of cost containment. To our knowledge, no such study has been reported.

We therefore, carried out a series of studies in 58 patients where single as well as dual beam machines were used to measure bone mineral content of distal radius on the same day using the same methodological approach. A tissue equivalent bag was used around the forearm and a single sweep was made to calculate bone mineral content at the junction of middle and distal third of radial shaft in gm/cm. Values ranged between 0.4 and 1.35gm/cm with both techniques although 85% were within 0.55-1.1gm/cm. The most important aspect was the result of linear regression, which showed an excellent correlation: $y(\text{dual}) = 0.015 + 0.986 \times X(\text{single})$, with $r(\text{correlation coeff.}) = 0.989$. All the points, except one, were found to lie within 95% confidence limits.

The present study clearly demonstrates that beside the known use of dual photon modality to estimate the trabecular bone of the spine and proximal femora, it can also be utilized for measuring radial bone mineral content thus providing a most comprehensive evaluation of bone mineral in a given patient with minimal radiation and at no increased expense.

YOGESH PATEL, M.D., PGY-I, Nuclear Medicine; SHIV M. GUPTA, M.D., Associate Clinical Professor, Nuclear Medicine, University of Connecticut School of Medicine; THOMAS DAVIES, CNMT, N.E. HERRERA, M.D., Associate Clinical Professor Pathology, Yale University School of Medicine and Clinical Professor Nuclear Medicine, University of Connecticut School of Medicine.

Department of Nuclear Medicine, Danbury Hospital.

Thyroid Function Following Radiation Therapy

Metabolism of thyroid hormones is altered by a variety of stressful states including starvation, acute and chronic illness, surgery, and trauma. Non-specific, but common to these is severe, or acute illness or nutritional deprivation. We investigated thyroid function during radiation therapy for a variety of malignancies to see if this stressful procedure would alter peripheral thyroxine metabolism. From February through October 1986, testing of T4 indices and T3 levels were offered to all patients before and at the completion of therapy with cobalt or high energy particle radiation (linear accelerator). Forty-five patients did not wish to participate and 17 subjects had initial but not final thyroid testing.

Preliminary analysis of all 44 subjects with complete studies showed that T4, T3, and thyroid index values decreased in 61%, 64%, and 61% of subjects respectively.

The decrease is significant ($p < .05$) for T3 only. Similar decreases have been reported following acute and subacute stresses. Values decreased in males more than in females but the difference is not significant. However, when subjects are grouped by area radiated, 62% of those treated with pelvic irradiation showed *increased* levels of T4 and T3, while FTI levels increased in 50%.

The difference in blood levels of T4 and T3 between pelvic irradiated and other subjects could not be attributed to significant group differences in weight loss, type of radiation, or dosage. Seven subjects on thyroxine medication showed variable responses. Further data analysis is planned. If further study of those subjected to therapeutic pelvic irradiation confirms these findings, it may be possible to uncover a radiation induced substance that affects thyroxine metabolism.

JOSEPH L. BELSKY, M.D., Clinical Professor Medicine, Yale University School of Medicine; BARBARA SMITH, M.S.; MINGZER TUNG, M.D., PGY-I Nuclear Medicine; DAVID BERGER, M.D., Assistant Clinical Professor Therapeutic Radiology, Yale University School of Medicine.

Departments of Medicine, Laboratory Medicine and Radiation Therapy, Danbury Hospital.

The Course of Cognitive Disorders in Schizophrenia and Other Functional Disorders

Since Kraepelin, standard concepts regarding the major psychiatric illnesses have been based on largely untested assumptions about progressive deterioration in schizophrenia as contrasted with expectations of better outcome and more rapid remission in the affective illnesses. Some recent follow-up studies have begun to challenge these basic formulations with evidence suggesting that schizophrenic outcome in the modern treatment era may now be considerably more optimistic.

To address several key issues regarding symptomatic outcome in the major psychoses, the current investigation used a prospective, longitudinal design to examine the course of thought disorders and psychotic symptoms in a sample of 104 young, early-phase, adult, RDC-diagnosed schizophrenics, and patients with other major affective disorders. Patients were assessed using standardized cognitive batteries and structured psychiatric interviews at three successive time periods spanning approximately five years.

The findings indicate: (1) The majority of schizophrenics showed a very poor prognosis involving severe psychopathological signs continuing into the early post-hospital period; (2) Schizophrenics showed more severe and persistent throught disorder and psychosis as compared to the nonschizophrenics; (3) However, a large subgroup of patients with *psychotic* affective disorders (schizoaffectives, manics and depressives) also showed signs of continuing psychopathology. The overall results suggest that recent reports of significantly improved prognosis for schizophrenia in the modern era may be overstated.

FRANK J. STOLL, Ph.D.

Department of Psychiatry, Danbury Hospital.

Metabisulfite Sensitivity in Asthma

Sensitivity to sulfite preservatives that results in bronchospasm has been reported in 3-8% of asthmatics. Provocation tests with ingested metabisulfite (MBS) have been reported to demonstrate this sensitivity in susceptible asthmatics. One proposed mechanism, however, suggests that SO_2 is released from sulfites in solution and inhaled, thereby stimulating airway irritant receptors. The purpose of this study was to 1) evaluate a capsule and oral solution challenge with the preservative metabisulfite; and 2) compare the degree of bronchospasm induced by MBS with that induced by methacholine (Mch), a non-specific bronchoconstrictor. Capsule challenge consisted of increasing doses of MBS (0,1,5,10,25,50,100, 200mg) given every 30 minutes. If negative, an oral solution with incremental doses of MBS were given every 15 minutes. A 20% decrease in forced expiratory volume in one second (FEV_1) from baseline was considered positive. None of our patients responded to the capsule challenge. The mean drop in FEV_1 was 2%. Seven of the 11 patients showed a positive reaction to the oral-swish challenge with a mean drop in FEV_1 of 47%; on a subsequent second challenge four of eight and on a third challenge two of five patients showed different results compared to their first challenge. In the second part of the study, we correlated the degree of bronchial responsiveness to MBS in nine responders to that seen with a methacholine inhalation challenge performed earlier in the same day. When the PD_{20} of Mch was compared to the PD_{20} of MBS of each patient, a high degree of correlation was found ($r=0.824$, $p<0.01$). PD_{20} represents the extrapolated dose which provokes a 20% drop of FEV_1 from baseline. From our study we conclude that 1) the oral solution challenge and not the capsule ingestion produced bronchoconstriction in our asthmatics, however, these results varied with time, and 2) the airway response to MBS correlated with that of methacholine, a test for non-specific bronchial hyperreactivity. These data suggest that the bronchoconstricting effects of MBS and Mch are mediated by similiar receptors and/or pathways.

R.J. LEE, M.D.; S.S. BRAMAN, M.D.; R.P. MILLMAN, M.D. AND G.A. SETTIPANE, M.D.

Department of Medicine, Danbury Hospital and Department of Allergy and Immunology and Pulmonary Medicine, Brown University.

Immunocytochemical Stain for Estrogen Receptors

A monoclonal antibody to estrogen receptors was used to stain 47 consecutive cases of infiltrating carcinoma of breast. The results were compared with those of the estrogen receptor assay (ERA) currently in use. Excellent correlation was demonstrated. The immunocytochemical stain offers some advantages over the widely used ERA, such as qualitative information in cases of heterogeneous staining. This study can be performed in small tissue samples and in fine needle aspirates which would not be suitable for the conventional steroid binding assays.

BEATRIZ M. CUELLO, M.D.; NANCY HAYNES, B.S.

Department of Laboratory Medicine, Danbury Hospital.

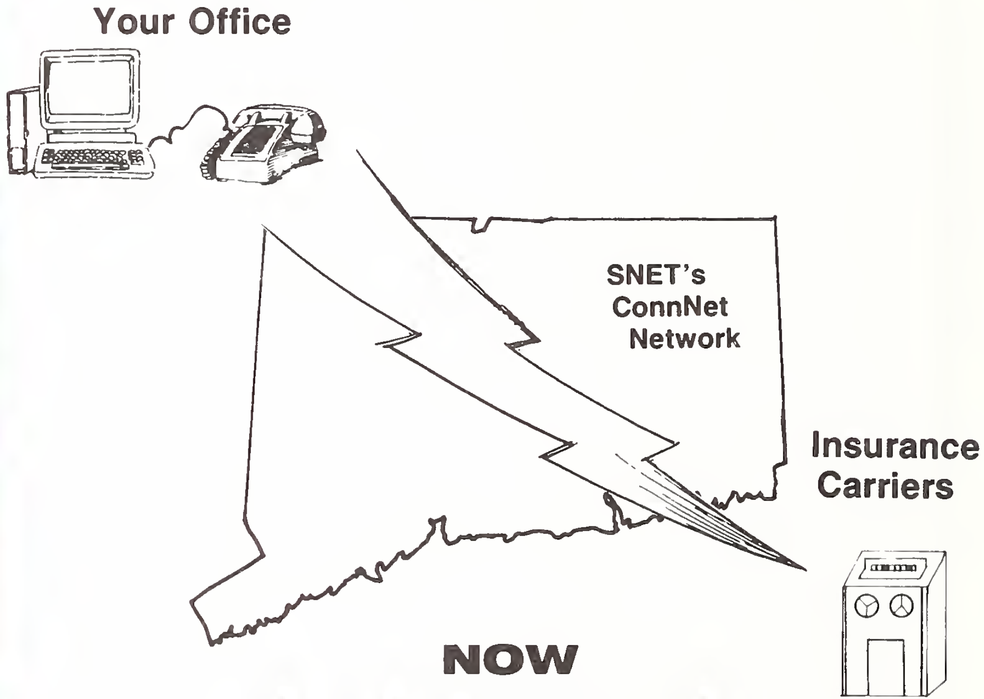
1987 STATE MEDICAL ASSOCIATION DUES

State	Dues	State	Dues
Alabama	$250	Montana	$370
Alaska	400	Nebraska	285
Arizona	375	Nevada	180
Arkansas	300	New Hampshire	275
California	340	New Jersey	330
Colorado	555	New Mexico	250
Connecticut	275	New York	275
Delaware	205	North Carolina	350
DC	615	North Dakota	270
Florida	300	Ohio	295
Georgia	335	Oklahoma	210
Hawaii	505	Oregon	325
Idaho	394	Pennsylvania	300
Illinois	273	Puerto Rico	220
Indiana	235	Rhode Island	400
Iowa	300	South Carolina	220
Kansas	220	South Dakota	350
Kentucky	400	Tennessee	220
Louisiana	235	Texas	235
Maine	375	Utah	285
Maryland	255	Vermont	225
Massachusetts	260	Virginia	300
Michigan	290	Washington	398
Minnesota	400	West Virginia	300
Mississippi	235	Wisconsin	465
Missouri	300	Wyoming	320

ProMed's

Electronic Claim Processing Makes $ense

A speedier remittance with no postage or paper costs
and no telephone use or claim charges.



NOW
Expanded for both

Blue Cross & Blue Shield of Connecticut
and
Constitution Health Network
Claim Submission

ProMed
SYSTEMS INCORPORATED

221 Whitney Avenue
New Haven, CT 06511

A
subsidiary of:

Blue Cross
Blue Shield
of Connecticut

Human Aging: Usual and Successful

JOHN W. ROWE AND ROBERT L. KAHN

Research in aging has emphasized average age-related losses and neglected the substantial heterogeneity of older persons. The effects of the aging process itself have been exaggerated, and the modifying effects of diet, exercise, personal habits, and psychosocial factors underestimated. Within the category of normal aging, a distinction can be made between usual aging, in which extrinsic factors heighten the effects of aging alone, and successful aging, in which extrinsic factors play a neutral or positive role. Research on the risks associated with usual aging and strategies to modify them should help elucidate how a transition from usual to successful aging can be facilitated.

Research on aging has emphasized losses. In the absence of identifiable pathology, gerontologists and geriatricians have tended to interpret age-associated cognitive and physiologic deficits as age-determined. We believe that the role of aging per se in these losses has often been overstated and that a major component of many age-associated declines can be explained in terms of life style, habits, diet, and an array of psychosocial factors extrinsic to the aging process.

Research on aging has also emphasized differences between age groups. The substantial heterogeneity within age groups has been either ignored or attributed to differences in genetic endowment. That perspective neglects the important impact of extrinsic factors and the interaction between psychosocial and physiologic variables. In this article we offer our perspective on the place of extrinsic factors in the aging process, the long-term consequences of extrinsically initiated changes, and the implications of our views for gerontological research.

The Concept of Normality in Studies of Aging

In recent decades, increasing interest in the medical problems of older people and in the process of aging itself has stimulated substantial growth in physiologic, psychologic, and sociologic research on aging in human populations. Investigators involved in such studies have from the beginning recognized the importance of separating pathologic changes from those that could be attributed to aging per se. Thus, for physiologic studies careful guidelines have been developed to exclude individuals whose age-determined responses and behaviors might be contaminated by specific disease processes.[1,2] Results on the population remaining after such exclusions have then been interpreted as representing "normal" aging, especially when the data came from longitudinal studies rather than cross-sectional comparisons of different age groups and were thus less confounded with cohort effects.

The concept of normality, explicit or implied, has served well in such research. During the past 30 years, numerous cross-sectional and longitudinal studies on populations carefully screened for disease have demonstrated major effects of age on such clinically relevant variables as hearing, vision, renal function, glucose tolerance, systolic blood pressure, bone density, pulmonary function, immune function, and sympathetic nervous system activity. More recently, related research has revealed characteristic changes with respect to cognitive and behavioral functions. Such nonpathologic changes are important not only as reflections of the aging process but also, in many cases, as precursors of pathology. They constitute the physiologic substrate for the influence of age on the subsequent presentation of disease, and perhaps on probable response to treatment and likelihood of complications.

Nevertheless, the division of populations into diseased versus normal and the division of research findings into disease-related and age-determined have serious limitations. Chief among these is the neglect of heterogeneity among older people in the nondiseased group with respect to many physiologic and cognitive characteristics, a herterogeneity that is important to both within cultures and between cultures. A second limitation of the emphasis on normality is the implication of harmless or lack of risk. And a third limitation is the related implication that, risky or not, what is normal is somehow natural and therefore is or should be beyond purposeful modification. In short, the emphasis on "normal" aging focuses attention on learning what most older people do and do not do, what physiological and psychologic states are typical. It tends to create a gerontology of the usual.

J.W. ROWE is associated with the Charles A. Dana Research Institute and Harvard Thorndike Laboratory at the Beth Israel Hospital; the Joint Department of Medicine, Beth Israel Hospital and Brigham and Women's Hospitals; Brockton-West Roxbury Veterans Administration Medical Center; and Division on Aging, Harvard Medical School, Boston, MA 02115. R.L. KAHN is a research scientist at the Institute for Social Research and a professor in the Department of Psychology and School of Public Health, University of Michigan, Ann Arbor, MI.

Reprinted with permission of the author and *Science*, July 10, 1987: 237:143-149.

Copyright, 1987 by the AAAS.

Successful and Usual Aging

Each of the foregoing limitations urges the development of an additional conceptual distinction within the normal category, which can be approximated by the contrast between usual on the one hand, and successful on the other. For example, while many important physiologic variables show substantial losses with advancing age on the average, an important characteristic of such age-grouped data is the substantial variability within groups.[1-3] In many data sets that show substantial average decline with age, one can find older persons with minimal physiologic loss, or none at all, when compared to the average of their younger counterparts. These people might be viewed as having aged successfully with regard to the particular variable under study, and people who demonstrate little or no loss in a constellation of physiologic functions would be regarded as more broadly successful in physiologic terms. They, in combination with people who show the typical nonpathologic age-linked losses that we propose to designate usual, constitute the heterogeneous category of the normal (that is, nondiseased) in any age group.

A distinction between usual and successful is urged similarly by recent discoveries with respect to risk factors for specific diseases. We are learning, for example, that age-linked increases in blood pressure, body weight, and serum cholesterol levels, while they may be usual in the populations that have been most frequently studied, are risk factors for cardiovascular disease. Moreover, such changes, which have been interpreted as age-intrinsic, are turning out to be usual in prosperous industrial countries but not in pastoral and traditional agricultural societies.[4].

It is at least a reasonable hypothesis, given such cross-cultural differences, that attributions of change to age per se may often be exaggerated and that factors of diet, exercise, nutrition, and the like may have been underestimated or ignored as potential moderators of the aging process. If so, the prospects for avoidance or even reversal of functional loss with age are vastly improved, and thus the risk of adverse health outcomes reduced.

The concept of successful aging does not, of course, replace the necessary concern with explicit diseases and their causes nor the need to know what the dominant patterns of aging are in our society, by whatever name (usual, average, or even normal) we designate them. The concept of successful aging, however, adds to these a focus on heterogeneity within age groups and on the elucidation of factors that explain success. We turn now to the research evidence that bears on the distinction between usual and successful aging, first for physiologic and then for psychosocial characteristics.

Aging and Carbohydrate Metabolism

It has been known for over 60 years that advancing age is associated with progressive impairments in the capacity to metabolize a glucose load.[5] After exclusion of individuals with fasting hyperglycemia, which is indicative of diabetes mellitus, as well as those treated with medications known to alter glucose tolerance and those noted to have become diabetic during the course of longitudinal studies, results of oral or intravenous glucose tolerance tests show a remarkable increase in the mean 2-hour blood sugar level with advancing age. There is a substantial increase in the variability of results in successive age groups, however, with many older individuals metabolizing glucose as well as their average younger counterparts. Resistance to the effect of insulin on peripheral tissues appears to play a major role in the genesis of glucose intolerance among nondiabetic older people. As with other insulin-resistant states, the insulin resistance of aging is associated with progressive increases in postprandial insulin levels.[6]

The carbohydrate intolerance of aging may carry substantial risk, even in the absence of disease. A recent report from the Honolulu Heart Program evaluated the 12-year risk of stroke in 690 diabetics and 6908 nondiabetics free of stroke at study entry.[7] Diabetes was clearly associated with increased risk of stroke, as expected. Additionally, among nondiabetics the risk of stroke was markedly age-related and was significantly higher for those at the 80th percentile of serum glucose than for those at the 20th percentile.

Findings on the carbohydrate intolerance of aging as a risk factor in coronary heart disease are mixed. While some epidemiological studies suggested an increase in coronary heart disease risk with hyperglycemia in nondiabetics, an international collaborative group conducting a thorough review of the 15 available studies on this issue did not find consistent evidence for that effect.[8] On the other hand, studies focusing on post-prandial hyperinsulinemia, a cardinal feature of the insulin resistance of aging, have shown increases in insulin levels to be a significant independent contributor to the incidence of coronary heart disease death.[9-11] In addition to these direct effects, increases in insulin level are associated with increases in triglyceride levels and decreases in high density lipoprotein-cholesterol levels, both of which are known risk factors for heart disease.[12-14]

Attempts have been made to determine which components of the age-associated alterations in carbohydrate intolerance are related to aging per se and which components might be related to factors such as diet, exercise, medications, and body composition. For example, in Italian factory workers aged 22 to 73 years, Zavaroni *et al.*[15] evaluated the relative contributions of obesity, physical activity, family history of diabetes, and the use of diabetogenic drugs to age-related increases in glucose and insulin levels after an oral glucose tolerance test. The initial strong statistical correlation between age and both post-prandial glucose and insulin levels became much weaker when the effects of exercise, diet, and drugs were taken into account, so that the correlation between glucose and age was limited to marginal statistical significance and there was no longer an effect of age on insulin levels. Hollenbeck *et al.*[16] showed a direct and statistically significant relation between physical fitness as reflected in maximal oxygen consumption and insulin-stimulated glucose metabolism in nonobease healthy older men. Seals and co-workers found the performance of older physically trained men on oral glucose tolerance tests was identical to that of young athletes and significantly better than that of untrained older men.[17]

As pointed out by Reaven and Reaven,[18] these findings clearly suggest that much of the observed carbohydrate intolerance of older people may be caused by factors other than biological aging per se, and that dietary or exercise modifications may substantially blunt the emergence with age of carbohydrate intolerance and insulin resistance. The latter view is supported by earlier studies demonstrating improvements in glucose tolerance in young adults and diabetics after exercise regimens,[17,19,20] as well as recent studies suggesting that exercise programs also improve the glucose intolerance and insulin resistance of older people.[21,22]

Aging and Osteoporosis

Aging is associated with a progressive decline in bone density in both males and females after maturity. Losses in bone density so severe as to result in fractures after minimal trauma define the "disease" osteoporosis, which accounts for more than 1 million fractures in the United States each year. Osteoporosis is of staggering importance in the elderly—by age 65 one-third of women will have veterbral fractures and by age 81 one-third of women and one-sixth of men will have suffered a hip fracture, often a catastrophic, if not terminal, event.[23]

Although it has long been recognized that osteoporosis is a process that has multiple possible causes and that varies a great deal among older people, aging itself has generally been considered a major factor in the loss of skeletal integrity. In their recent review of current information regarding involutional osteoporosis, Riggs and Melton[23] indicate that three separate components contribute to age-related bone loss. The first component—the effect of intrinsic aging—represents a decline in bone mass with advancing age in both men and women beginning in the 20s and 30s, and includes several identifiable physiologic processes. In women this bone loss occurs despite regular periods and intact ovarian function. The second component—a more rapid decline in bone mass in women after middle age—is accountable to the prominent effects of menopause. The third component, which is of major clinical importance, represents the net effect of "extrinsic" factors present to a variable degree in the population that contribute to the remarkable variance in bone density among the elderly. These preventable risk factors include cigarette smoking, heavy alcohol intake, and inadequate calcium intake.[24-27]

In addition to identifying several potentially modifiable factors contributing to the emergence of osteoporosis, a number of studies suggest that bone loss can be blunted in advanced age by institution of moderate exercise programs.[28-30] Thus, emergence of osteoporosis, a common, crippling, and expensive disorder previously considered to represent the "normal" aging process, is variable and influenced by aging and nonaging factors. The marked reductions in bone density associated with "usual" aging may be in large part preventable or modifiable.

Aging and Cognitive Function

Apparent age-related changes that further study suggests are not intrinsic to the aging process and may be modifiable have been found in cognitive domains as well.[31] Schaie and his colleagues conducted an instructive series of cross-sequential studies on successive cohorts of individuals across the adult age range, thus permitting a comparison of cross-sectional and longitudinal data from the same study populations.[32] Cross-sectional comparisons between age groups for subjects tested in 1963 showed significantly lower scores in many cognitive capacities for the older groups, a finding commonly interpreted as reflecting performance declines with advancing age. However, when the same subjects were retested 7 years later, they did not show the age-related declines that would have been predicted on the basis of the earlier cross-sectional comparisons. The longitudinal data suggested that declines in both verbal test scores (crystallized intelligence) and scores on reasoning and spatial tests (fluid intelligence) occurred at substantially later ages than the cross-sectional comparisons had implied. Such differences between cross-sectional and longitudinal comparisons exemplify a cohort effect, in which successive age cohorts score differently at the same chronological age. Differences of this kind cannot be explained in terms of factors intrinsic to the aging process, which are presumably constant from one age cohort to another. The explanation of cohort differences must be sought elsewhere—for example, in nutritional or educational differences between cohorts.

A clear demonstration of the influence of education on test performance commonly considered age-determined can be seen in Green's analysis of scores on the Wechsler Adult Intelligence Scale.[33] Comparisons across age groups in a stratified random sample showed large age-related differences, of the kind usually interpreted as decrements caused by age. However, when similar comparisons were made between age groups limited to people of equal education, the "age effect" became significant.

These studies of Schaie and Green, taken together with similar findings by other investigators,[31] indicate that much of the cognitive loss in late middle life that has been considered intrinsic to aging is caused in part by extrinsic factors and may therefore be preventable. That such losses may even be reversible once they occur is suggested by the recent studies of Schaie and Willis.[34] These investigators divided participants in a longitudinal study into those with a clear pattern of decline in fluid intelligence (inductive reasoning and spatial orientation) with aging and those whose performances was stable. After five training sessions there was substantial and retained improvement among the individuals who were previously declining in cognitive function.

Psychosocial Factors in Health and Disease Among Older People

In the rest of this article we will focus on psychosocial factors, which constitute one category of the extrinsic variables that influence patterns of aging, both usual and successful. Most health-relevant psychosocial research on older people, however, has been concentrated on morbidity and mortality as the outcomes of interest with few if any distinctions made within the residual category of the non-diseased elderly. Despite this neglect of nonpathologic aspects of aging, this research provides a valuable backdrop for the research we call for, since it identifies extrinsic psychosocial properties that influence the well-being of older men and women. Psychosocial factors should be studied in their full range, not only in their negative aspects. Doing so is especially important to reveal their contributions to successful aging. Two dimensions that have been sufficiently studied to serve as examples of our views are autonomy (or control) and social support (or connectedness).

Autonomy and Control

A great deal of research has been done in the broad area of control or autonomy—that is, the extent to which individuals are able to make decisions regarding choice of activity, method and manner of engagement, timing, pace, and the like. Despite a discouraging scatter of measures, the research results show a remarkable convergence: lack of control has adverse effects—on emotional states, performance, subjective well-being, and on physiologic indicators.

The potential relevance of research on control, animal and human, for understanding the circumstances and well-being of older people was observed promptly by gerontological research workers. Older people commonly encounter reductions in autonomy and control for a variety of reasons—physical impairments, reduced economic capability as wages are replaced by retirement stipends, residential moves from separate households to combined or institutional living arrangements, and the like.[35] In recent years a number of studies have been done on the effects, or at least the concomitants, of autonomy limitations of various kinds of older people. This considerable literature has been the subject of two recent summaries,[36,37] and we therefore limit ourselves to major examples.

The bulk of control-oriented research with older human populations is nonexperimental and more often cross-sectional than longitudinal, both of which facts urge caution in casual interpretation. Nevertheless, the substantive findings are encouraging in their consistency. For example, Wolk[38] compared the residents of two retirement settings, a low constraint retirement village and a relatively high constraint retirement home. Residents in the former setting were observed to be more in control of their own activities, they so perceived themselves, and they also scored higher in life satisfaction and adjustment.

Shupe[36] cites preliminary data from a longitudinal study of psychosocial events and health status[39] that provides a stronger basis for causal inference. Undesirable events over which the individual has full control did not correlate with the index of strain, whereas undersirable events over which the individual had no control were strongly correlated with strain. When the individual had partial control, the correlation with strain depended on a third variable, the predictability of the aversive stimuli, with low predictability heightening the relation between lack of control and strain, and high predictability suppressing the relation.

Perhaps the most persuasive data on the effects of control among older people come from the small number of field experiments in which the control of individuals over their own daily lives was systematically increased. These experiments have been done almost entirely with populations already in residential retirement facilities or nursing homes, or among people facing imminent relocation to such facilities.

Krantz and Schulz,[40] following an earlier nonexperimental study[41] in which the negative health changes after admission to a nursing home were found to be moderated by the amount of individual control over the move, conducted an experiment in which prospective patients were given a choice about the timing of the move, which of several institutions they would move to, and some of the living arrangements after the move. Under these experimental conditions, there was little decline from the level of health and psychological well-being as assessed before the move.

Langer and Rodin[42] conducted an experiment in a nursing home in which residents on one floor were given a treatment that enhanced control consisting of a lecture from the nursing-home administrator about decisions that they could and should make for themselves. A comparison group, on another floor, heard a lecture of similar length that emphasized what the staff would do in taking care of such matters. During the first 3 weeks after the experimental treatment, people in the experimental group were happier and more active according to self-report and spent more time in social activities as reported by nurses, who also judged them to be generally more improved than those in the control group. These changes persisted and the differences between groups increased over an 18-month period.

A near replication of the Rodin and Langer experiment was conducted by Mercer and Kane.[43] The experimental treatment was extended to include individual visits by the nursing-home administrator in which patients were invited to join a council of residents. The comparison group in this experiment came from a second nursing home. Again the experimental group showed increased activity, improvement in staff-rated patterns of eating and sleeping, and decreases in self-reported hopelessness.

A third field experiment in a nursing-home setting, similar in some respects, was conducted by Schulz and his colleagues.[44,45] Again the experimental treatment involved increased control, in this case over the timing and duration of student visits, and again enhanced control produced gains in positive affect, activity level, and general health status. The differences between the experimental group (enhanced control) and two comparison groups, one of which received no student visits and one of which received visits on a random and unpredictable basis, were unambiguous. However, a fourth group, which had no control over the timing of the visits but was given advance infromation about their scheduling, showed improvements comparable to those of the enhanced control group. These findings suggest that the positive effects of enhanced control may be due at least in part to its making life more predictable; control confers predictability.

A more recent nursing-home experiment by Avorn and Langer[46] extends this line of work by comparing two experimental treatments, one of which is control-enhancing and the other control-reducing. Experimental subjects, a total of 72 with an average age of 78 years, were randomly assigned to three groups and given the task of completing individually a simple jigsaw puzzle. All subjects then had four 20-minute practice sessions. Subjects in the first group were given verbal encouragement during practice; subjects in the second group were given direct assistance, and subjects in the third group received no assistance or encouragement beyond the initial instruction. All subjects were rated for proficienty and speed both before and after the experimental treatments. The results showed significant improvement for subjects who had been encouraged, significant deterioration for subjects who had been directly assisted, and no change for subjects who had had no experimental treatment. The authors argue that the direct-assistance treatment is typical of approaches to older people that do for them what they could do or learn to do for themselves. The effect is infantilizing; the lesson is learned helplessness. We concur, and add that the essential difference between the two experimental studies is one of control: encouragement in this situation is control enhancing; assistance is control reducing.

On balance, these studies, all published within the past 10 years, represent an important line of field-experimental research. Their results reinforce earlier nonexperimental findings that suggested the importance of control for the well-being of older people. In our opinion, the extent to which autonomy and control are encouraged or denied may be a major determinant of whether aging is usual or successful on a number of physiologic and behavioral dimensions.

Aging and Social Support

Several lines of research on psychosocial factors and health converge around the concept of social support. Moreover, in spite of the definitional inprecision of the concept and the variety of measures that claim to assess it, empirical research has produced consistent if not often large associations between social support and various indicators of health and well-being.[47] Some of this research has involved attempts to measure support directly, usually by report of the recipient but occasionally by report of the provider as well.[48] Some has inferred support from less subjective data—marital status and household composition, for example, or proximity of family members. Most such research has neglected the variable of age and none shows systematially differentiated findings across the entire life course. A significant number of studies, however, are specific to older people or control appropriately for age, and it is those on which we rely for this review. We will consider first the evidence that social networks and support as persisting conditions affect mortality and morbidity. Finally, we will consider some of the ramifications of this work for successful aging, including the relation to autonomy and control among older people.

Three epidemiological studies show that membership in a network of family and friends is associated with lesser mortality risk. In the Alameda County Study, Berkman[49] developed a social network index that included marital status, contacts with extended family and close friends, church group membership, and other group affiliations. Analyses based on this index showed age-adjusted relative risks of 2.3 for men and 2.8 for women over the 9-year period of the study, where relative risk refers to the likelihood of death among people at the bottom of the social network index in comparison with those at the top. The Tecumseh (Michigan) study,[50] in similar multiple logistic analyses of social connectedness, found significant relationships to mortality over a 10-year period for both men and women, which age controlled. And the Durham County study,[51] which included perceptions of social support as well as reported connectedness, and in contrast to the Alameda and Tecumseh studies was limited to men and women aged 65 years or more, showed relative mortality risks of 3.40 for impaired social support (self-perceived), 2.04 for impaired roles and attachments, and 1.88 for low frequency of social interaction.

The positive effects of social support have also been demonstrated by means of intervention studies, most of them involving supportive behaviors by professional or quasi-professional persons. Criteria include rate and completeness of recovery from injuries, heart attacks, cancer, and other physical illnesses.[52-54] At least four intervention studies involve the introduction of social support by one or more informal sources (relative, friends) to increase adherence to hypertensive regimens. Three of them showed significant increases in adherence, with some evidence that the involvement of people significantly related to the patient made an independent contribution to the outcome.[55-57]

Bereavement and Relocation

If the presence of social support and its experimental introduction in times of stress are conducive to well-being and recovery from illness, it is plausible that support-disrupting events should have negative effects. Two such life events are especially common among older people—bereavement and relocation, which involve, respectively, the loss of one's spouse and the loss (or at least partial loss) of friends and neighbors. Both these events have been studied for their effects on mortality and morbidity, usually with some limitations in design and measurement. For example, losses of social support are typically inferred rather than measured directly.

The gross fact of higher age-specific mortality rates among widowed than among married people has been reported in studies for many years. In 1969, Parkes, Benjamin, and Fitzgerald[58] provided more precise prospective data from a 9-year follow-up of 4486 widowers aged 55 or more. Excess mortality in this group peaked during the first 6 months of bereavement (40% excess) and declined thereafter, so that in the fifth year the mortality rate for widowers was not significantly different from that for the married men who served as controls. Causes of death varied, but in almost half the cases death certificates showed heart disease as the cause.

The finding of excess mortality has been confirmed in three other longitudinal studies,[59-61] although the most recent of them[61] does not show the peaking of mortality during the first 6 months, the concentrated reporting of heart disease as the cause of death, or the gradual return to nonexcessive mortality rates within 5 years. These studies, which included women as well as men, do show a significant gender effect. For reasons not fully understood, excess mortality after the loss of a spouse is more characteristic of men than women. Tentative explanations emphasize the different roles of men and women in nutrition and meal preparation and the greater reliance of men on emotional support from their wives.[62]

The effects of bereavement have been studied in terms of morbidity as well as mortality, with varying results. Higher rates of reported symptoms have commonly been found, but without change in major diagnosed disease,[63] physicians visits, or rates of hospitalization.[64] And one study[65] of elderly men and women (average age 74) found no differences between the married and widowed on any measure of health. Post facto explanation emphasized the expectation of people in the upper age range to encounter such losses and their consequent readiness to cope with them.

Next to bereavement, residential relocation is the network-disrupting event that has been most studied in elderly populations. In a review of this research, Minkler[66] distinguishes between moves within the community of private households and moves into or between nursing homes and other institutions. Moves of the latter kind have more consistently resulted in excess mortality, especially during the early months after the move,[67] although not all studies show mortality effects. Moves of the former kind have not shown excess mortality, but they have showed increases in number of physician visits and nursing home admissions, with concomitant reductions in self-rated health.[68] Kasl and Berkman[69] suggest that these differences in study results, especially those involving institutional residence, may depend on the manner of preparation and handling, as well as the relative quality of the two environments. This interpretation is consistent with findings on the effects of predictability and control described above.

Well-designed field experiments to test the effects of social support on morbidity and mortality changes after major life transitions are much needed and exceedingly rare. In one such study,[70] 200 recently bereaved widows less than 60 years of age were assigned randomly to an experimental group that receive support and encouragement during a 3-month period, or to a control group that received no treatment. Morbidity was significantly reduced in the experimental group during the 12-month post-intervention period. Apparently, social support can mitigate the ill effects of even this most painful relationship-disrupting event of later life. Its ability to facilitate successful aging in other ways has yet to be explored.

Support and Control

Social support and control have been studied separately as psychosocial factors affecting health, but they are almost certainly related. The interpersonal behaviors that are called supportive include, among others, the providing of material assistance, information, sick care, and expressions of respect and love. Support so defined, in our view, can either increase or decrease the autonomy and control of the recipient. Teaching, encouraging, enabling are autonomy-increasing modes of support. Constraining, "doing for," warning, and the like beyond the requirements of the situation may convey caring but they teach helplessness.

Some research findings are consistent with this line of speculation, which would predict greater positive effects for supportive behavior when it is also autonomy-enhancing. We referred earlier to the nursing-home experiment in which performance at a simple cognitive task was enhanced by encouragement but reduced by direct assistance.[46] Pearlin *et al.* found that emotional support reduced depressive symptoms by the intervening process of increasing self-esteem and mastery.[71] Bulman and Wortman found that paraplegic victims of severe accidents responded best to support that emphasized their control over their own lives, even in choosing the activity that led to the accident.[72]

To realize the potential contributions of support to successful aging, we must establish a causal sequence that includes the individual's need for support (objective and perceived), the kind of support required (material, informational, emotional), and the effect of that support on other psychosocial predictors of success, of which autonomy and control are an important example.

Psychosocial and Physiologic Pathways

A further step in understanding the effect of psychosocial factors on health must be the integration of psychosocial causes with a broad array of biologic outcomes, including the full functional range instead of the conventional restriction to morbidity and mortality. Moreover, we must learn the pathways by which such causes and effects are linked. Berkman,[73] in a review chapter on social networks, proposes four main possibilities for investigation:

1. Providing help, care, and material assistance may be directly health protective. For example, a person who is ill

may receive care from family members and friends before and beyond the requirements of professional medical service.

2) Psychosocial resources may enable people to get better and earlier medical care. Antonucci *et al.*,[74] in a study of early detection of cancer symptoms, found that the promptness with which individuals sought medical diagnosis was affected by the actions of their personal network members. Most consistent of these network factors was the direct intervention of friends or family members in making medical appointments, providing transporation, and the like.

3) Psychosocial influences may increase health-promoting and risk-reducing behaviors. For example, peer pressure may induce better nutritional practice, elimination of smoking, moderation in the use of alcohol, or adherence to medical regiments.[55]

4) Psychosocial factors may also have direct physiologic effects. Research on cardiovascular disease, while by no means consistent, implies such a direct pathway, as do some animal experiments on neural, hormonal, and immunologic processes.

Epidemiological research on cardiovascular diseases suggests a direct link between psychosocial causes and physiologic effects mainly by a process of elimination: when the usual risk factors are statistically controlled, a direct physiologic pathway between supportive interpersonal relations and a specific disease is proposed as a plausible residual explanation. Interpretations of this kind have been offered to explain relations between sustained interpersonal bonds and coronary heart disease in widely diverse groups—Japanese Americans in California[75] and Hawaii,[76] women clerical workers in the Framingham study,[77] and Israeli civil servants.[78] Such findings are intriguing but not conclusive, especially because they are inconsistent in several respects—in their generality across demographic subgroups, in their application of incidence as well as prevalence, and in their explaination of myocardial infarct as well as angina pectoris.

The direct effect of psychosocial factors on physiologic processes has been investigated more rigorously in animal research, with findings that link behavioral and environmental interventions to neural, hormonal, and immunologic processes and then to disease outcomes—alloxan diabetes in rats[79] and Marek's disease in chickens,[80] for example. Studies of this kind with human populations are fewer, but increasing. Jemmott and Locke[81] describe 40 studies that link psychosocial factors, immunologic processes, and susceptibility to infectious diseases.

Few of these studies have yielded age-specific results or have been conducted with elderly populations. Two, however, have studied the effects of bereavement on lymphocyte function. Bartrop *et al.*[82] found lower lymphocyte response to mitogenic stimulation [with phytohemagglutinin (PHA) and concanavalin A (Con A)] among bereaved spouses as compared with controls matched by age, sex, and race, but no differences in T- and B-cell counts or in plasma cortisol. Schleifer *et al.*[83] reported a significant reduction in T-lymphocyte response to stimulation by one mitogen, which suggests that bereavement may affect humoral as well as cell-mediated immunity. Other studies, both animal and human, have demonstrated the effect of such stressors as novelty, unpredictability, and suspenseful anticipation on plasma cortisol secretion rates, especially among subjects with inadequate psychological defenses.

To the extent that older people are placed in situations where they lack control over their lives, and to the extent that the forms of support available to them are not control-enhancing, we would predict physiologic changes of the kinds reported in this research, with consequent increases in morbidity and passivity. The positive implications of such predictions are that increased predictability, control, and support that enhances both will be reflected in increased proactive behavior and resistance to disease. Research along these lines should help explain the great variability within the population of nondiseased elderly and thus increase our understanding of successful aging.

Directions of the Future

The central theme of this article is the distinction between usual and successful aging and the consequent need for interdisciplinary studies of the factors that determine the trajectry of function with advancing age. Most gerontological research, however, continues to concentrate on average tendencies within different age groups and to neglect the substantial heterogeneity within such groups. That heterogeneity, moreover, appears to increase with increasing age.

The emphasis on usual age-linked tendencies encourages an overreadiness to treat age as if it were itself a sufficient explanatory variable; the emphasis on heterogeneity within age groups compels a search for other explanations as well. Epidemiological research shows that age-extrinsic factors such as eating and exercise habits are prominent among such potential explanations. These habits are shaped and sustained by psychosocial influences—properties of the larger culture and behaviors of family members, friends, and professionals.

Our first recommendation, therefor, is that gerontological research should incorporate the distinction between usual and sucessful aging. That in turn means including the full functional range of the outcome variables under study. It also means undertaking the task of explaining the heterogeneity of older people with respect to those functions.

Our second recommendation is that gerontological research should concentrate on understanding transitions in later life, especially transitions that have functional significance. Some of these represent loss of function—from successful to usual, usual to diseases, diseased to impaired. But not less important and much less understood are the potentialities for transition in a positive function-expanding direction. Experimental results on the effects of exercise in increasing bone density and the effects of specialized training in improving cognitive functions demonstrate the possibility of positive reversals in older populations. To the extent that maintenance and recovery of function can be explained in terms of extrinsic factors, it becomes reasonable to think of increasing the proportion of the successful elderly.

Autonomy and social support were discussed as psychosocial factors relevant to understanding successful aging. Research on autonomy is reasonably interpreted as indicating that the role of the helpless elder is to a significant degree shaped by the immediate environment of the individual—its opportunities and constraints, and the specific behaviors of influential others who define them. Experiments with people showing extreme functional losses—residents and prospective residents of nursing homes—have shown that some of these losses are reversed by modest increases in autonomy and the encouragement to use them.

Social support, like autonomy, has positive effects on function and self-reported well-being. Support—defined to include the enhancement of material, informational, and emotional resources—seems to exert these effects both directly and by buffering the negative effects of stressors. The fact that behavior intended to be supportive has been shown in at least one situation to have negative effects on function suggests the importance of distinguishing between autonomy-enchancing and autonomy-reducing modes of support. This distinction is familiar in the field of child development but not in gerontological research, and it is only one example of a causal complexity that is almost certainly widespread.

Our third recommendation, therefore, is that extrinsic factors that influence successful aging should be studied in interdependent combinations as well as singly.

Finally, research that links the physiologic and psychosocial levels is suggested by the fact that both are implicated in the definition and explanation of successful aging. Recent experiments showing the effect of psychosocial interventions on physiologic indicators of stress and resistance to disease illustrate both the feasibility and the importance of such interdisciplinary efforts. Scientific work on aging requires both levels of explanation for completeness, and gerontologic practice requires both for the development of effective interventions. Our fourth recommendations, therefore, is for aging research that links the psychosocial and physiologic levels.

These recommendations have in common a thrust toward health promotion and disease prevention in the elderly. A revolutionary increase in life span has already occurred. A corresponding increase in health span, the maintenance of full function is nearly as possible to the end of life, should be the next gerontological goal. The focus on successful aging urges that goal for researchers, practitioners, and for older men and women.

REFERENCES

1. J.W. Rowe, N Engl J Med 1985, 312, 827.
2. NW Shock et al. Normal Human Aging: The Baltimore Longitudinal Study of Aging (US Department of Health and Human Services, Washington DC, 1984).
3. JW Rowe, N Engl J Med 1983, 309, 1246.
4. I Waldron et al. Soc Sci Med 1982, 16, 416.
5. KL Minaker, GS Meneilly, JW Rowe, in Handbook of the Biology of Aging, CE Finch and EL Schneider, Eds. (Van Nostrand Reinhold, New York 1985), pp 433-456.
6. MB Davidson, Metabolism 1979, 28, 688.
7. RD Abbott et al. J Am Med Assoc 1987, 257, 949.
8. International Collaborative Group on Asymptomatic Hyperglycemia and Coronary Heart Disease. J Chronic Dis 1979, 32, 11/12.
9. P Ducimetiere et al. Diabeterologia 1980, 19, 205.
10. K Pyorala, Diabetes Care 1979, 2, 131.
11. TA Welborn and K Kearne, ibid, p 154.
12. MS Greenfield et al. Metabolsim 1980, 29, 1095.
13. LA Carlson and LE Bottinger, Lancet 1972, 1972-1, 865.
14. I Zavaroni et al. Atherosclerosis 1985, 55, 259.
15. I Zavorini et al. J Am Geriatri Soc 1986, 34, 271.
16. CB Hollenbeck, W Haskell, M Rosenthal GM. Reaven, ibid 1985, 33, 273.
17. DL Seals et al. J Appl Physiol 1984, 56, 152.
18. GM: Reaven and EP Reaven, J Am Geriatri Soc 1985, 33, 286.
19. DE James, EW Kraegen, DJ Chisholdm. J Appl Physiol 1984, 56, 1217.
20. JB Leblanc, A Nadeau, M Boulay, S Rosseau-Migneron, J Appl Physiol 1979, 46, 235.
21. DL Seals et al. J Am Med Assoc 1984, 252, 645.
22. RP Tonino, WH Nedde, DC Robbins, ES Horton, Clin Res 1986, 34, 457.
23. BL Riggs and LJ Melton, N Engl J Med 1986, 314, 1676.
24. E Seeman, LJ Melton, WM O'Fallon, BL Riggs, Am J Med 1983, 75, 977.
25. DD Bikle et al. Ann Intern Med 1982, 103, 42.
26. MA Adena and HG Gallagher, Ann Hum Biol 1982, 9, 121.
27. H Jick, J Port, AS Morrison, Lancet 1983, 1983-I, 1354.
28. JF Aloia, SH Cohn, JA Ostuni, R Cane, K Ellis, Ann Intern Med 1978, 89, 356.
29. B Krolner, B Toft, PS Nielson, E Tondevold, Clin Sci 1983, 64, 57.
30. EL Smith, W Reddan, PE SMith, Med Sci Sports Exercise 1981, 13, 60.
31. G Labouvie-Vief, in Handbook of the Psychology of Aging, JE Birren and KW Schaie, Eds. (Van Nostrand Reinhold, New York 1985), pp 500-530.
32. KW Schaie and G Labouvie-Vief, Dwv Psychol 1974, 20, 305.
33. RF Green, ibid 1969, 1, 618.
34. KW Schaie and S Willis, ibid 1986, 22, 223.
35. TH Holmes and RH Rahe, J Psychosom Res 1967, 11, 213.
36. DR Shupe in Cognition, Stress, and Aging, JE Birren and J Livingston, Eds. (Prentice-Hall, Englewood Cliffs, NJ 1985), pp 174-197.
37. J Rodin, Science 1986, 233, 1271.
38. S Wolk, J Consulting Clin Psychol 1976, 44, 420.
39. AH McFarlane et al. J Health Soc Behav 1980, 21, 124.
40. D Krantz and R Schulz in Applications of Personal Control, Advances in Environmental Psychology, A Baum and JE Singer, Eds. (Erlbaum, Hillsdale, NJ 1980), vol 2, pp 23-57.

41. R Schulz and G Brenner, J Gerontol 1977, 32, 323.

42. EJ Langer and J Rodin, J Pers Soc Psychol 1976, 34, 191.

43. S Mercer and RA Kane, Health Soc Work 1979, 4, 90.

44. R Schulz, J Pers Soc Psychol 1976, 33, 563.

45. ________ and BH Hanusa, ibid 1978, 36, 1194.

46. J Avorn and EJ Langer, J AM Geriatr Soc 1982, 30, 397.

47. JS House and RL Kahn in Social Support and Health, S Cohen and SL Syme, Eds. (Academic Press, Orlando, FL 1985) pp 83-108.

48. TC Antonucci in Handbook of Aging and the Social Sciences, E Shanas and RH Binstock, Eds. (Van Nostrand, New York 1985) pp 94-128.

49. L Berkman, Health annd Ways of Living: Findings from the Alameda County Study (Oxford Univ Press, New York, 1983).

50. JS House, C Robbins and H Metzner, Am J Epidemiol 1982, 116, 123.

51. D Blazer, ibid 1982, 115, 684.

52. W Gruen, J Consulting Clin Psychol 1975, 43, 223.

53. S Bordow and D Porritt, Soc Sci Med 1979, 13A, 251.

54. D Spiegel, JR Bloom, I Yalom, Arch Gen Psychiatr 1981, 28, 257.

55. RD Caplan et al. Social Support and Patient Adherence (Institute for Social Research, Ann Arbor, MI 1976).

56. JL Earp and MG Ory, Prev Med 1979, 8, 155.

57. DM Levine et al. J Am Med Assoc 1979, 241, 1700.

58. CM Parkes, B Benjamin, R Fitzgerald, Br Med J 1969, 1, 740.

59. WD Rees and SG Lutkins, ibid 1967, 4, 13.

60. AM Ward, ibid 1976, 1, 700.

61. K Helsing, GW Comstock, M Szklo, Am J Epidemiol 1981, 114, 31.

62. RL Kahn, E Wethington, B Ingersoll-Dayton in Life-span Perspective and Social Psychology, R Abels, Ed. (Erlbaum, Hillsdale, NJ in press).

63. D Maddison and A Viola, J Psychosom Res 1986, 12, 4.

64. PJ Clayton, Arch Gen Psychiatr 1974, 30, 747.

65. D Heyman and D Guanturco, J Geroontol 1973, 28, 359.

66. M Minkler in Social Support and Health, S Cohen and SL Syme, Eds. (Academic Press, Orlando, FL 1985) pp 199-216.

67. SV Kasl, Am J Public Health 1972, 62, 379.

68. ________ and S Rosenfield in Handbook of Mental Health and Aging, J Birren and B Sloane, Eds. (Prentice-Hall, Englewood Cliffs, NJ 1980) pp 468-498.

69. SV Kasl andL Berkman in Aging: Biology and Behavior, JL McGaugh and SB Kiesler, Eds. (Academic Press, New York 1981).

70. B Raphael, Arch Gen Psychiatr 1977, 34, 1450.

71. LI Perlin et al. J Health Soc Behav 1981, 22, 337.

72. RJ Bulman and CB Wortman, J Pers Soc Psychol 1977, 33, 351.

73. LF Berkman in Social Support and Health, S Cohen and SL Syme, Eds. (Academic Press, Orlando, FL 1985) pp 241-262.

74. TC Antonucci et al. Cancer Symptoms in the Elderly: Support and Responses (Institute for Social Research, Ann Arbor, MI 1986).

75. JG Joseph and SL Syme, "Risk factor status, social isolation, and CHD," paper presented at the 21st Conference on Cardiovascular Disease Epidemiology, American Heart Association, San Antonio, TX March 1981.

76. D Reed et al. Am J Epidemiol 1983, 117, 384.

77. S Haynes and M Feinleib, Am J Public Health 1980, 70, 133.

78. J Medalie and V Goldbourt, Am J Med 1976, 60, 910.

79. R Ader, A Kreutner, HL Jacobs, Psychosom Med 1963, 25, 60.

80. WB Gross, Am J Vet Res 1972, 33, 2275.

81. JB Jemmott and SE Locke, Psychol Bull 1984, 95, 78.

82. RW Bartrop et al. Lancet 1977, 1977-I, 834.

83. SJ Schleifer et al. "The influence of stress and other psychosocial factors on human immunity," paper presented at the 36th Annual Meeting of the Psychosomatic Society, Dallas, TX 1979.

84. This work was supported by the MacArthur Foundation Research Program on Successful Aging. The authors are indebted to M Albert, D Featherman, G Reaven, J Nessleroade, and N Resnick for stimulating discussions and helpful suggestions regarding this manuscript. This article was prepared while RLK was a fellow at the Center for Advanced Study in the Behavioral Sciences. We are grateful for the financial support provided in that connection by the Carnegie Corporation of New York and the William and Flora Hewlett Foundation.

While you take care of patients, who takes care of you?

Connecticut physicians rely on us for comprehensive insurance and financial services.

- Professional liability coverage
- Business owners protection
- Personal life, auto, and homeowners insurance
- Financial planning
- Complete brokerage services

The Watson Group - professionals serving professionals.

the
WATSON
GROUP

Arthur A. Watson & Company, Inc.
Financial Action Plans, Inc.
Watson Financial Services Corporation
AAW Physician Plans, Inc.

225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The Management of Clinically Localized Prostate Cancer

NATIONAL INSTITUTES OF HEALTH

Introduction

Prostate cancer is the second most common form of malignant disease in American men. It is one of the most common cancers in men over the age of 50 with the incidence increasing each decade after the age of 50. Approximately 96,000 new cases of prostate cancer will be diagnosed in 1987, of which 50,000 are clinically localized according to the American College of Surgeons, and there are approximately 26,000 deaths from prostate cancer annually. It is a common finding at autopsy in men over the age of 50 years. The most common histologic tumor type is adenocarcinoma. The etiology remains unknown at the present time.

Prostate cancer is discovered usually by rectal examination performed during a physical examination or detected incidentally in the histologic material obtained from a transurethral prostatectomy being performed for enlargement of the prostate. Patients with localized disease may be asymptomatic at the time of the diagnosis of prostate cancer or may have symptoms of urinary retention.

The extent of tumor involvement (stage) customarily is described by a classification system that has undergone evolution and modification over the years. Difficulties in describing disease extent have arisen from the use of different staging systems and from staging based on clinical as opposed to surgical findings. Because of this lack of uniformity in the staging systems, the analysis of data remains complex and difficult. Two accepted clinical staging systems are in use. The American Urologic System consists of A, B, C, and D stages, and the American Joint Committee uses the T, N, and M system.

Radical prostatectomy has a long history as the definitive management for localized prostate cancer. The retropubic approach, which readily permits staging lymphadenectomy, has become more common than the perineal approach. Recently, the surgical technique has been refined to preserve the nerves essential for potency. Radiation therapy is another form of definitive treatment and is usually given by means of high-energy external beam photons using linear accelerators. Hormone therapy is an effective means of palliation whose role in the management of early disease is under renewed investigation as an adjuvant to definitive therapy of the primary tumor. Chemotherapy generally has been used in the palliation of patients with advanced hormone refractory disease.

After the completion of treatment of prostate cancer, the followup of the patient includes physical examination, laboratory studies, and imaging examinations. The exact combination of laboratory studies and imaging examinations has not been agreed upon, and this situation is undergoing evolution in the United States. The natural history of this disease is variable, and some untreated patients may die without symptoms of prostate cancer. Competing (noncancer) causes of death are common in the age group affected by prostate cancer. These factors make the significance of therapeutic intervention more difficult to assess than in other cancers.

The general quality of life and sexual functioning can be affected by treatment for prostate cancer. These aspects should be considered when the physician helps the patient to choose the best course of treatment.

To evaluate new information and resolve issues regarding optimal treatment, the National Cancer Institute and the Office of Medical Applications of Research of the National Institutes of Health convened a Consensus Development Conference on the Management of Clinically Localized Prostate Cancer on June 15-17, 1987. After a day and a half of presentations by experts and discussion by the audience, a consensus panel drawn from specialists and generalists from the medical profession and related scientific disciplines, clinical investigators, and public representatives considered the evidence. The panel agreed on answers to the following key questions:

- What is the utility of pathological assessment and imaging techniques in the staging of prostate cancer? When is pelvic node dissection necessary?
- Who is the optimal candidate for radical prostatectomy? What is the morbidity of the procedure, and how can it be minimized with preservation of curative potential?
- Who are the candidates for definitive radiation therapy? What methods are optimal, and what are the long-term results in terms of local control and survival? What is the morbidity of the procedures, and how can it be minimized with preservation of curative potential?
- Should definitive radiation therapy, hormone therapy, and/or chemotherapy be employed as adjuvant treatment in high-risk patients?
- What directions for future research are indicated?

From the Office of Medical Application of Research, National Institutes of Health, Bethesda, Md.

Reprint requests to the Office of Medical Applications of Research, Room 216, National Institutes of Health, Bethesda, MD 20205 (Michael J. Bernstein).

1. What is the Utility of Pathological Assessment and Imaging Techniques in the Staging of Prostate Cancer? When is Pelvic Node Dissection Necessary?

An accurate histologic or cytologic diagnostic of cancer of the prostate is essential prior to the planning of treatment. The histologic diagnosis usually is established from a specimen obtained by core biopsy or transurethral resection. It may be obtained cytologically from a fine needle aspiration. Histologic and/or cytologic grading and staging (extent of disease) are necessary to plan appropriate treatment and provide a prognosis.

There are several systems for grading prostate cancer that yield similar information and are all based upon the degree of tumor differentiation and growth patterns. The Gleason histologic grading system is based on five tumor patterns. The values of the predominant and the lesser patterns are added together to generate a numerical histologic score. Histologic grading correlates well with the biological degree of malignancy, i.e., tumor invasion, metastatic spread, and mortality rate.

The nature of the specimen obtained by fine needle aspiration usually precludes histologic but not cytologic grading based on nuclear anaplasia. Experienced observers find that cytologic grading yields results and information similar to histologic grading, but this requires further prospective correlation. The simplicity of fine needle aspiration should increase its use. All tissue sampling techniques have a recognized risk of error.

Flow cytometry can be used to measure DNA content. Abnormal DNA content appears to be predictive of more aggressive biological behavior. Additional study is required to determine its prognostic utility in routine practice.

Pelvic lymphadenectomy is a surgical staging procedure employed when clinical decisions depend on accurate knowledge of the presence or absence of metastatic tumor in the pelvic lymph nodes. It is performed most commonly prior to a planned radical prostatectomy. Pelvic lymph node dissection continues to provide staging information that can be obtained by no other method.

Biochemical evaluation is critical to the initial staging assessment. Serum alkaline phosphatase and acid phosphatase determinations are helpful in identifying patients with metastatic disease. The serum prostate specific antigen (PSA) is elevated more frequently in men with prostate cancer than is the acid phosphatase. PSA can be used to monitor response to both local and systemic therapies. PSA is specific for prostate tissue but not for prostate cancer, precluding its use in screening.

Anatomic imaging contributes to the staging assessment of patients presenting with prostate carcinoma. The initial evaluation requires isotopic bone scan, chest roentgenogram, and an imaging evaluation of the upper urinary tract. While lymphography has been used in the past, its current applications are limited. More locally directed imaging techniques for clinical staging include transcrectal ultrasound, computerized tomography, and magnetic resonance imaging. It is essential that results of all imaging examinations be carefully correlated with results of digital rectal examination, cystoendoscopy, and pertinent laboratory tests in the determination of the clinical stage of the cancer. Imaging equipment should be state of the art. There is no single best procedure, and all procedures have significant limitations in their accuracy.

The value of transrectal ultrasound is operator-dependent. It should employ a dual modality intrarectal probe. Intraprostatic anatomy, capsular integrity, and the seminal vesicles can be imaged. Pelvic adenopathy cannot be demonstrated.

Computerized tomography can assess the periprostatic area and lymph node size. Intraprostatic detail is poor, and masses rarely are identified. The detection of enlarged lymph nodes is highly sensitive, but normal-sized nodes may contain microscopic tumor.

Magnetic resonance imaging, like transrectal ultrasound, can demonstrate intraprostatic anatomy. The technique appears to be as accurate as computerized tomography and transrectal ultrasound in the detection of periprostatic extension and seminal vesicle involvement. It is competitive with computerized tomography in demonstrating pelvic adenopathy.

At present, scientific controlled studies are lacking in adequate patient numbers to permit other than a gross comparison of imaging methods. Clinical comparisons are biased by patient selection and nonblinded observer factors.

2. Who is the Optimal Candidate for Radical Prostatectomy? What is the Morbidity of the Procedure, and how can it be Minimized with Preservation of Curative Potential?

A radical prostatectomy includes the removal of the entire prostate and seminal vesicles with adequate resection margins by either a retropubic or perineal approach. The adequacy of surgical margins should be confirmed by a thorough pathological evaluation. An appropriate candidate for definitive primary radical prostatectomy has a tumor that is localized to the prostate (A_2, B_1, B_2). The patient should be an acceptable surgical candidate and have no significant comorbid disease. Patients should have completed a negative staging evaluation for distant metastases. Ideally, pelvic lymphadenectomy should be performed with a retropublic prostatectomy and for high-risk patients having a perineal prostatectomy. Adequate staging information will be obtained with a "limited node dissection" that includes nodes within the boundaries of the external and internal iliac vessels and obturator fossa. This will minimize complications of lymphedema and lymphocele.

Radical prostatectomy is associated with both perioperative morbidity and late side effects. These complications can include urinary incontinence, urethral stricture, impotence, and morbidity associated with anesthesia and a major surgical procedure. Significant incontinence and stricture are uncommon. The incidence of importence can be reduced with newer surgical techniques using an anatomical dissection that preserves nerves necessary for erection. The preservation of potency with this technique is achieved in a majority of patients, although it is related to tumor size and patient age. Attempts to preserve potency must not compromise adequate removal of the tumor.

Clinically evident local recurrence following radical prostatectomy is not common. Cancer-free survival rates at 15 years for patients with cancer limited to one lobe of the prostate approach the expected survival of men in the general population in a comparable age group. Disease-free survival rates are less with larger tumors.

3. Who are the Candidates for Definitive Radiation Therapy? What Methods are Optimal, and What are the Long-Term Results in Terms of Local Control and Survival? What is the Morbidity of the Procedures, and how can it be Minimized with Preservation of Curative Potential?

Candidates for definitive radiation therapy must have a confirmed pathological diagnosis of cancer that is clinically confined to the prostate and/or surrounding tissues (A_2, B, C). Patients should have completed a negative staging evaluation for distant metastases.

An effective radiation therapy regimen should deliver a homogeneous dose to the entire tumor volume. Such a dose is delivered most commonly by external beam radiation therapy. In selected instances, interstitial irradiation can be delivered with or without external beam radiation therapy when the disease is confined to the prostate gland. Although lower local control rates have been reported with interstitial therapy, efforts are being made to improve these results by careful attention to technique and dosimetry. Newer radiation modalities such as particle therapy are under active investigation. Local tumor in the prostatic and periprostatic tissue can be controlled effectively by irradiation. However, the impact on overall survival of treating the regional lymph nodes is unclear.

Definitive radiation therapy is associated with both acute and chronic effects on normal tissue, including proctitis, enteritis, and cystitis. These are generally acceptable and reversible but may be chronic and rarely sufficiently severe to require corrective surgical intervention. Other complications include occasional urethral stricture formation in patients who have undergone a previous transurethral resection of the prostate. Potency is preserved with definitive radiation therapy in the majority of patients but may diminish over time. Morbidity can be minimized by the use of sophisticated radiation techniques, including the use of linear accelerators producing high energy x-ray beams, careful treatment planning including simulation, and individualized shielding.

The assessment of local control is critical in evaluating the results of radiation therapy. Reported rates of local tumor control are a function of the diagnostic method used to establish them. By clinical criteria alone, the local control rates are higher than if postradiation positive biopsies are used as the end point. The likelihood of finding histologically positive biopsies following radiation therapy is of concern and related to the clinical disease stage. The significance of this currently is being studied, but it may be predictive of subsequent distant relapse.

Survival is related to the initial clinical stage and histologic grade. The 10-year crude survival rates of patients with low stage disease (A_2, B) treated with radiation therapy are equivalent to the expected survival of men in the comparable age groups. Survival rates in more locally advanced stages of disease clearly reflect the increased incidence of cancer death.

4. Should Definitive Radiation Therapy, Hormone Therapy, and/or Chemotherapy be Employed as Adjuvant Treatment in High-Risk Patients?

No data are available to support the routine use of adjuvant therapy after definitive surgery or irradiation. Preliminary data suggest that adjuvant hormone manipulation and irradiation deserve further study in locally advanced prostate cancer patients. A definition of the appropriate patient population for such studies remains to be developed.

5. What Directions for Future Research are Indicated?

The Consensus Development Conference on the Management of Clinically Localized Prostate Cancer provided a large body of information to optimize the diagnosis, staging, and management of this prevalent disease. While many controversies were addressed, numerous questions were identified that await answers and thus serve as the focus for future research directions. These issues will require the collaborative input of investigators from both clinical and basic disciplines. As outlined in the consensus statement, many questions are being answered currently—others will be the focus for future research.

Directions for Clinical Research

A. Agree to a uniform classification and schema for histologic and cytologic grading, disease staging, and response criteria that are acceptable to health care professionals caring for patients with prostate cancer.

B. Define the appropriate use of diagnostic imaging in staging prostate cancer patients through well-designed, controlled comparison studies. The development of imaging methods to measure tumor volume could provide a noninvasive predictor of the aggressiveness of cancer.

C. Encourage educational programs for pathologists and cytologists in the diagnosis of prostate cancer with the purpose of increasing accuracy and uniformity.

D. Assess the availability and quality of surgical treatment and initiate surgical educational programs as needed.

E. Accept a uniform method for data reporting and statistical analyses that will allow meaningful comparisons of treatment results reported by various disciplines.

F. Identify clinical and pathological prognostic variables. The identification of "low and high risk" features may allow more appropriate selection of treatments for patients with clinically localized disease. Parameters to study may include morphologic predictors, the correlation of DNA flow cytometry, prostate specific antigen determination, and tumor cytogenetics with disease outcome.

G. Assess the clinical significance of positive postradiation biopsies, and identify ways to reduce the incidence of these positive biopsies.

H. Assess in controlled trials the role of localized postoperative irradiation in patients with positive margins after radical prostatectomy.

I. Assess in controlled trials the role of adjuvant hormonal therapy in patients with locally advanced disease after radical prostatectomy and/or definitive radiation therapy.

J. Clarify the clinical significance and therapeutic implications of the extent of nodal involvement.

K. Address the influence of treatment programs on the quality of life of patients and their loved ones. Identify appropriate psychosocial and psychosexual instruments and end points to assess quantitatively the effect of treatment in patients with both localized and metastatic disease. Study and implement innovative interventions to improve the psychological outcome.

L. Agree upon a uniform clinical and pathological definition of stage A_1 prostate cancer. Initiate studies to define the natural history of untreated stage A_1 patients to help determine which patients may benefit from treatment.

Directions for Basic Research

A. Encourage basic research to elucidate fundamental processes regulating normal prostate and prostate cancer growth and their impact on the natural history of disease.

B. Assess the diagnostic and therapeutic role of prostate cancer specific monoclonal antibodies.

Conclusion

Radical prostatectomy and radiation therapy are clearly effective forms of treatment in the attempt to cure tumors limited to the prostate for appropriately selected patients. Comparisons across studies suggest comparable 10-year survival rates with either form of management. What remains unclear is the relative merit of each in producing lifelong freedom from cancer recurrence. It is known that traditional radical prostatectomy can provide 15-year cancer-free survival, in appropriately selected patients, equivalent to that of a comparably aged control population. On the other hand, sufficient long-term followup does not yet exist to permit a conclusion about the ability of radiation therapy to eradicate such cancer in an equivalent proportion of patients.

After appropriate primary irradiation, the long-term complication rate is now well defined and appears acceptable. The new approach to prostatectomy is clearly associated with a reduction in postoperative impotence. The true comparative incidence of impotence over time, however, awaits prospective evaluation. While impotence may result from the alteration of normal anatomy, the psychological considerations should not be overlooked. Sexual rehabilitation should address both medical and psychological needs.

Information that a patient should have available when considering with his physician the choice of treatment includes:

1. Probability of cure, mortality, complications, and other side effects of radical prostatectomy and radiation therapy.
2. Risk of impotence and incontinence for either treatment.
3. Psychosocial consequences of either choice.
4. Extent and risk of pretreatment staging assessment tests.
5. Economic consequences of each form of treatment.

As competing, noncancer-related causes of death (e.g., cardiovascular disease) may be expected to decrease for men over the age of 50, the issue of cure will become more important in low stage disease. Properly designed and completed randomized trials that evaluate both disease control and quality of life after modern radiation therapy compared with radical prostatectomy are essential.

Members of the Consensus Development Panel were: Robert B. Livingston, M.D., Panel Chairperson, Professor Medicine, Head, Division of Oncology, University of Washington, Seattle, WA; Alfred A. Bartolucci, Ph.D., Professor and Chairman, Department of Biostatistics, and Biomathematics, University of Alabama at Birmingham, Birmingham, AL; Joshua A. Becker, M.D., Professor and Chairman, Department of Radiology, State University of New York, Health Science Center at Brooklyn, Brooklyn, NY; William C. DeWolf, M.D., Associate Professor of Surgery, Harvard Medical School, Beth Israel Hospital, Boston, MA; John T. Ellis, M.D., Chairman and Professor, Department of Pathology, The New York Hospital-Cornell Medical Center, New York, NY; H. Anthony Engelbrecht, M.D., Director, Department of Radiation Oncology, Merritt Peralta Medical Center, Associate Clinical Professor of Radiology, Stanford Medical School, President, California Radiation Therapy Association, Oakland, CA; Marc B. Garnick, M.D., Associate Professor of Medicine, Harvard Medical School, Dana-Farber Cancer Institute, Boston, MA; John T. Grayhack, M.D., Herman L. Kretschmer Professor and Chairman, Department of Urology, Northwestern University Medical School, Chicago, IL; Lance K. Heilbrun, Ph.D., Director of Biostatistics, Division of Medical Oncology, Wayne State University, Detroit, MI; James G. Jones, M.D., Professor and Chairman, Department of Family Medicine, East Carolina University, School of Medicine, Greenville, NC; Shannon B. McGowan, M.A., Psychotherapist/Oncology Consultant, Private Practice, Point Richmond, California, John Muir Community Hospital and Cancer Center, Walnut Creek, CA; C. Kent Osborne, M.D., Professor of Medicine, University of Texas Health Science Center, San Antonio, TX; Joel E. Tepper, M.D., Associate Professor of Radiation Therapy, Harvard Medical School, Radiation Therapist, Massachusetts General Hospital, Boston, MA; John R. Thornbury, M.D., Professor of Radiology, Deparment of Radiology, University of Rochester Medical Center, Rochester, NY.

Members of the planning committee were: John E. Antoine, M.D., Planning Committee Chairperson, Associate Director, Radiation Research Program, Division of Cancer Treatment, National Cancer Institute, National Institutes of Health, Bethesda, MD; Andrew Chiarodo, Ph.D., Chief, Organ Systems Program, National Cancer Institute, National Institutes of Health, Bethesda, MD; Jerry M. Elliott, Program Analyst, Office of Medical Applications of Research, National Institutes of Health, Bethesda, MD; Michael A. Friedman, M.D., Chief, Clinical Investigations Branch, Cancer Therapy Evaluation Program, National Cancer Institute, National Institutes of Health, Bethesda, MD; Eli Glatstein, M.D., Chief, Radiation Oncology Branch, Division of Cancer Treatment, National Cancer Institute, National Institutes of Health, Bethesda, MD; Robert B. Livingston, M.D., Conference and Panel Chairperson, Professor of Medicine, Head, Division of Oncology, University of Washington, Seattle, WA; Elliott H. Stonehill, Ph.D., Assistant Director, National Cancer Institute, National Institutes of Health, Bethesda, MD; Patrick C. Walsh, M.D., David Hall McConnell Professor, Director, Department of Urology, Johns Hopkins University School of Medicine, Johns Hopkins Hospital, Baltimore, MD; Willet F. Whitmore, Jr., M.D., Attending Surgeon, Urology Service, Memorial Sloan-Kettering Cancer Center, Professor of Surgery (Urology), The New York Hospital - Cornell Medical Center, New York, NY; Richard D. Williams, M.D., Professor and Chairman, Department of Urology, University of Iowa Hospitals and Clinics, Iowa City, IA.

The conference was sponsored by: National Cancer Institute, Vincent T. DeVita, Jr., M.D., Director, Office of Medical Applications of Research; National Institutes of Health, Itzhak Jacoby, Ph.D., Acting Director.

DRUG INFORMATION UPDATE: HARTFORD HOSPITAL

Aztreonam

WILLIAM R. OUTMAN, PHARM.D.

Aztreonam (Azactam®, Squibb) is a synthetic antibiotic that represents the first of a new class of monocyclic beta-lactam antibiotics (monobactams). Structurally, aztreonam differs from other beta-lactam agents by the presence of only a substituted four-member beta-lactam ring rather than a bicyclic ring.

Microbiology

The antimicrobial spectrum of aztreonam is essentially limited to gram-negative aerobic bacteria including *Pseudomonas aeruginosa*. The breakpoints recognized for indicating "susceptibility" or "resistance" to aztreonam are: Gram negative aerobic bacteria inhibited by ≤8mcg/ml are regarded as "sensitive," those inhibited by 16mcg/ml to be "intermediate" and those with an MIC of ≥32mcg/ml are considered to be "resistant."[1] The minimum inhibitory concentration of aztreonam is usually less than 1.0mcg/ml against 90% of clinical isolates of *Haemophilus influenzae, Neisseria meningitidis, N. gonorrhoeae,* and the *Enterobacteriaceae* (except *Enterobacter* species).[2-5] The MIC$_{90}$ values for *Enterobacter* species, *E. cloacae* and *E. aerogenes* have usually ranged between 4 and 50mcg/ml.[2-4] Aztreonam has generally been shown to have activity against *P. aeruginosa*, the MIC$_{90}$ usually being between 12 and 32 mcg/ml in studies that examined at least 50 strains.[3,4] Other Pseudomonads have generally been resistant to aztreonam.[6,7] The majority of *Acinetobacter* species are resistant or only moderately susceptible.[7]

Aztreonam has little or no activity against gram-positive aerobic bacteria or anaerobic bacteria.[8]

The activity of aztreonam in combination with other antimicrobial agents has been studied for a number of gram-negative bacteria including *P. aeruginosa*. Synergy is commonly seen between aztreonam and aminoglycoside antibiotics against *P. aeruginosa* and, less often, with other gram-negative bacilli.[9] Synergy *in vitro* has been noted with combinations of aztreonam and some beta-lactam antibiotics.[9] However, such combinations are more likely to be indifferent or antagonistic, especially when the other beta-lactam is a potent inducer of beta-lactamase.[9,10]

Pharmacokinetics

Although aztreonam is not absorbed orally, it is completely and rapidly absorbed after intramuscular administration. Single-dose intramuscular (IM) administration of 0.5 and 1g produced peak plasma concentrations of 22 and 46mcg/ml, respectively.[11] In contrast, administration of aztreonam by a 30-minute intravenous (IV) infusion resulted in peak plasma concentrations of 65.5, 164, and 255 mcg/ml after doses of 0.5, 1.0, and 2.0g, respectively.[12] Aztreonam does not appear to accumulate after multiple IV or IM doses.[13]

Aztreonam is rapidly distributed after both IM and IV administration. The volume of distribution at steady-state (0.18L/kg) is comparable to extracellular fluid space.[14] Protein binding is reported to be 56%.[15] Concentrations of aztreonam in the CSF in the presence of meningeal inflammation are 0.8-15mcg/ml one to four hours after a single 2g IV dose.[16]

Metabolism plays a minor role in the elimination of aztreonam from the body; approximately 7% of an administered dose is recovered in the urine as an inactive metabolite.[15] Because 65% of aztreonam is excreted unchanged by the kidneys, dosage modifications are necessary in patients with renal dysfunction.[15] The drug is removed by both hemodialysis and peritoneal dialysis.[17,18] The half-life of elimination of aztreonam in normal subjects is reportedly between 1.6 and two hours.[12,15]

Efficacy in Clinical Trials

Urinary Tract Infections (UTI): In comparative studies, aztreonam has shown efficacy similar to the aminoglycosides for the treatment of UTIs. Although a range of aztreonam doses have been employed, a regimen of 0.5g twice daily for a median of nine days has been reported effective, even for the treatment of difficult (*Pseudomonas*) infections.[19]

Lower Respiratory Infections (LRI): Aztreonam has been compared with tobramycin in gram-negative LRI, frequently combined with a second antibiotic (often clindamycin)

William R. Outman, Pharm.D., Post-doctoral Pharmacy Fellow, Hartford Hospital.

This series on Drug Information Update from the Hartford Hospital is provided by Charles H. Nightingale, Ph.D., Director of Pharmacy Services, Hartford Hospital.

Editors: Moses Sing Sum Chow, Pharm.D. and Robert A. Quercia, M.S., R.Ph.

to provide coverage for gram-positive and anaerobic organisms. Aztreonam resulted in similar or higher response rates than tobramycin, even when the organism isolated was *P. aeruginosa*.[20,21]

Intra-abdominal Infections: Aztreonam, in combination with clindamycin, has been used successfully to treat a variety of intra-abdominal infections including peritonitis, abscesses, abdominal infection and peritonitis, and perforated appendix.[22] In patients with postoperative or perioperative intra-abdominal infections, the efficacy of aztreonam plus clindamycin was similar to that of tobramycin plus clindamycin.[23]

Obstetric and Gynecologic Infections: Aztreonam plus clindamycin was shown to be 100% effective in 49 patients with pelvic inflammatory disease, many of whom (64%) had positive pre-treatment cultures for *Neisseria gonorrhoeae*.[24]

Gonococcal Infections: A single 1g intramuscular dose of aztreonam was equivalent in effectiveness to a single 2g IM dose of spectinomycin in acute uncomplicated gonorrhea, including infection caused by penicillinase-producing gonococci.[25] Preliminary evidence suggests aztreonam is not useful in patients with pharyngeal gonococcal infection.[22]

Adverse Effects

Like other beta-lactam antibiotics, aztreonam has been extremely well tolerated by most patients. The most commonly reported adverse effects have been local reactions (swelling/phlebitis) 2.4%, pruritis/rash 1.6%, nausea/vomiting 0.9%, and diarrhea 0.8%.[26] Clinically insignificant elevations of hepatic enzymes (SGOT, SGPT) have also been observed. Cross-reactivity with other beta-lactam antibiotics appears to be low.[22,27,28]

Superinfections, usually with gram-positive organisms such as enterococci, staphylococci, and *S. pneumoniae*, have developed in aztreonam-treated patients with rates generally similar to those in control groups (approximately 5%).[29]

Drug Interactions and Compatibilities

No important pharmacokinetic interactions were observed between aztreonam and clindamycin, nafcillin, metronidazole, cephradine and gentamicin.[30] In a series of studies conducted by Riley, et al., aztreonam was compatible for varying periods of time with clindamycin, cefazolin, tobramycin, ampicillin, gentamicin and cefoxitin when mixed together in 5% dextrose in water or 0.9% NaCl.[31-34] Aztreonam is incompatible with nafcillin and metronidazole.[34,35]

Dosage and Administration

The usual adult dose of aztreonam can range from 1-8g/day in divided doses every 6-12 hours depending on the sensitivity of the infecting pathogen, the severity of the infection and the patient's degree of renal function.[22,27,28] Because urine concentrations are so high (10 to 100 times concurrent serum concentrations) doses as low as 500mg every 12 hours are recommended for treating urinary tract infections. The usual dose to treat systemic infections is one gram every eight hours. Higher doses may be appropriate if the infection exists in a body site where antibiotic penetration is poor, or natural defenses are suboptimal, or both (e.g., CSF, bone). Patients with creatinine clearance between 10 and 30ml/minute should receive a 1 to 2g loading dose, followed by a maintenance dose that is 50% of the usual dose.

Currently, aztreonam is *restricted* to the Infectious Disease Service and further restricted to a maximum dose of 1g every eight hours.

Cost

Hartford Hospital cost for a regimen of 1g IV every eight hours is $37.58 per day (including drug, supply, and labor costs). See Table 1 for a cost comparison of a number of IV antibiotic combinations.

Table 1

COST OF SELECTED IV ANTIBIOTIC REGIMENS AT HARTFORD HOSPITAL[a,b,c]

1. For Pseudomonas aeruginosa

Imipenem + Gentamicin or Tobramycin	Mezlocillin + Gentamicin or Tobramycin	Ceftazidine + Gentamicin or Tobramycin	Aztreonam + Gentamicin or Tobramycin
$84.38 / $98.45	$53.62 / $67.69	$53.20 / $67.27	$47.47 / $61.54

2. For Common Intra-abdominal Pathogens

Aztreonam + Clindamycin or Metronidazole	Ceftriaxone + Clindamycin or Metronidazole	Gentamicin or Tobranycin + Mezlocillin	Gentamicin or Tobranycin + Clindamycin	Gentamicin or Tobranycin + Metronidazole
$80.68 / $58.71	$70.81 / $48.84	$53.62 / $67.69	$52.99 / $67.06	$31.02 / $45.09

a. Doses of antibiotics used for comparison: Imipenem 500mg q6h, Gentamicin and Tobramycin 80mg q8h, Mezlocillin 5g q8h, Ceftazidine 1g q8h, Aztreonam 1g q8h, Clindamycin 600mg q8h, Metronidazole 500mg q6h, Ceftriaxone 1g q24h.

b. The antimicrobial spectrum and the potential for adverse effects may differ between regimens listed; factors other than cost need to be evaluated when selecting an antibiotic regimen.

c. Cost listed includes daily supply cost, cost of administration sets, nursing administration time cost, and cost of pharmacy technician time.

Comments and Summary

The fact that the antimicrobial spectrum of aztreonam is specifically targeted against aerobic gram-negative bacteria (including *P. aeruginosa*) may be viewed positively or negatively. When the pathogen is known to be a sensitive gram-negative, the use of directed therapy with aztreonam would facilitate preservation of indigenous anaerobes of the intestinal tract. However, for the empiric therapy of many types of infections, aztreonam would generally need to be coadministered with an antibiotic that covers gram-positives or anaerobes, or both. Such a combination regimen would not likely represent a cost savings relative to currently utilized antibiotic regimens.

Aztreonam is a monobactam antibiotic with activity specifically directed against gram-negative aerobic bacteria including *Pseudomonas aeruginosa.* Clinical efficacy has been similar to that of the aminoglycosides for a variety of infections. Like other beta-lactam antibiotics, aztreonam has an excellent safety profile. Moreover, the drug appears to be tolerated in the majority of penicillin-allergic patients. Clearly, aztreonam represents a unique departure from traditional beta-lactam antibiotics. Whether such a departure will prove to be an advantage in the treatment of gram-negative infections can only be answered on the basis of further studies and clinical experience.

REFERENCES

1. National Committee for Clinical Laboratory Standards: Performance Standards for Antimicrobial Disk Susceptibility Tests M2-A3, 4th ed, Vol 4, No 16, NCCLS, Villinova PA, December 1984.
2. Bremner DA. Aztreonam activity against gram-negative bacilli. Chemotherapy 1984, 30:44.
3. Fainstein V, Weaver S, Bodey GP. Comparative *in vitro* study of SQ 26776. Antimicrob Agents Chemother 1982, 21:294.
4. Sykes RB, Bonner DP, Bush K, Georgopapadakou NH. Aztreonam (SQ 26776) a synthetic monobactam specifically active against aerobic gram-negative bacteria. Antimicrob Agents Chemother 1982, 21:85.
5. Barry AL, Thornsberry C, Jones RN, et al. Aztreonam: Antibacterial activity, B-lactamase stability, and interpretive standards and quality control guidelines for disk-diffusion susceptibility tests. Rev Infect Dis 1985, 7(Suppl 4):S594.
6. Appelbaum PC, Tamin J, Pankuch GA, Aber RC. Susceptibility of 324 nonfermentative gram-negative rods to six cephalosporins and aztreonam. Chemotherapy 1983, 29:337.
7. Strandberg DA, Jorgensen JH, Drutz DJ. Activities of aztreonam and new cephalosporins against infrequently isolated gram-negative bacilli. Antimocrob Agents Chemother 1983, 24:282.
8. Phillips I, King A, Shannon K, Warren C. SQ 26,776: *in vitro* antibacterial activity and susceptibility to B-lactamases. J Antimicrob Chemother 1981, 8(Suppl E):103.
9. Buesing MA, Jorgensen JH. In vitro activity of aztreonam in combination with newer B-lactams and amikacin against multiply resistant gram-negative bacilli. Antimicrob Agents Chemother 1984, 25:283.
10. Rehm SJ, Alanis A, Hall G, et al. Synergism between aztreonam and tobramycin, moxalactam, and pipercillin against *Pseudomonas aeruginosa* and *Serratia* marcescens. Vol 3. In: Spitzy KH, Karrer K, eds. Proceedings of the Thirteenth International Congress of Chemotherapy, Vienna 1983:8.
11. Swabb EA, Sugerman AA, Platt TB, et al. Single-dose pharmacokinetics of the monobactam aztreonam (SQ 26776) in healthy subjects. Antimicrob Agents Chemother 1982, 21:944.
12. Scully BE, Swabb EA, Neu HC. Pharmacology of aztreonam after intravenous infusion. Antimicrob Agents Chemother 1983, 24:18.
13. Swabb EA, Sugerman AA, McKinstry DN. Multiple-dose pharmacokinetics of the monobactam azetreonam (SQ 26776) in healthy subjects. Antimicrob Agents Chemother 1983, 23:125.
14. Swabb EA. Review of the clinical pharmacology of aztreonam. Chemotherapia 1985, 4(Suppl):35.
15. Swabb EA, Singhri SM, Leitz MA, et al. Metabolism and pharmacokinetics of aztreonam in healthy subjects. Antimicrob Agents Chemother 1983, 24:394.
16. Greenman RL, Arcey SM, Dickinson GM, et al. Penetration of aztreonam into human cerebrospinal fluid in the presence of meningeal inflammation. J Antimicrob Chemother 1985, 15:637.
17. Gerig J, Boltan ND, Swabb EA, et al. Effect of hemodialysis on aztreonam pharmacokinetics. Kidney International 1984, 26:308.
18. Boltan ND, Gerig J, Scheld WM, et al. Pharmacokinetics of aztreonam in patients on chronic ambulatory peritoneal dialysis. In: Spitzy KH, Karrer K, eds. Proceedings of the Thirteenth International Congress of Chemotherapy, Vienna 1983.
19. Cox CE. Aztreonam therapy of complicated urinary tract infections due to multidrug-resistant bacteria. Chemotherapia 1985, 4(Suppl):46.
20. Rodriguez JR, Ramirez-Ronda CH, Nevarez M. Efficacy and safety of aztreonam-clindamycin versus tobramycin-clindamycin in the treatment of lower respiratory tract infections caused by aerobic gram-negative bacilli. Antimicrob Agents Chemother 1985, 27:246.
21. Schentag JJ, Vari AJ, Wirslade NE, et al. Treatment with aztreonam or tobramycin in critical care patients with nosocomial gram-negative pneumonia. Am J Med 1985, 78(Suppl 2A):34.
22. Brogden RN, Heel RC. Aztreonam. A review of its antibacterial activity, pharmacokinetic properties and therapeutic use. Drugs 1986, 31:96.
23. Henry SA. Overall clinical experience with aztreonam in the treatment of intra-abdominal infections. Rev Infect Dis 1985, 7(Suppl 4):769.
24. Dodson MG. The polymicrobial etiology of acute pelvic inflammatory disease and treatment regimens. Rev Infect Dis 1985, 7:S696.
25. Gottlieb A, Mills J. Effectiveness of aztreonam for the treatment of gonorrhea. Antimicrob Agents Chemother 1985, 27:270.
26. Research Investigator's Brochure - Aztreonam (SQ 26,776). The Squibb Institute for Medical Research. Princeton, New Jersey, April 1984.
27. Hopefl AW. Aztreonam - An overview. Drug Intell Clin Pharm 1985, 19:171.
28. Childs SJ, Bodey GP. Aztreonam. Pharmacotherapy 1986, 6:138.
29. Bendush CL, Henry SA. Aztreonam: Worldwide clinical trials results. Chemotherapia 1985, 4(Suppl):102.
30. Creasey WA, Adamovies J, Dhruv R, et al. Pharmacokinetic interaction of aztreonam with other antibiotics. J Clin Pharmacol 1984, 24:174.
31. Riley CM, James MJ. Stability of intravenous admixtures containing aztreonam and cefazolin. Am J Hosp Pharm 1986, 43:925.
32. James MJ, Riley CM. Stability of intravenous admixtures of aztreonam and clindamycin phosphate. Am J Hosp Pharm 1985, 42:1984.
33. James MJ, Riley CM. Stability of intravenous admixtures of aztreonam and ampicillin. Am J Hosp Pharm 1985, 42:1095.
34. Bell RG, Lipford LC, Massanari MJ, Riley CM. Stability of intravenous admixtures of aztreonam and cefoxitin, gentamicin, metronidazole, or tobramycin. Am J Hosp Pharm 1986, 43:1444.
35. Riley CM, Lipford LC. Interaction of aztreonam with nafcillin in intravenous admixtures. Am J Hosp Pharm 1986, 43:2221.

View from the Hill

JAMES E. BRYAN

Whatever else may be memorable or remarkable about the state of American medicine as we approach the end of this tumultuous century, few physicians and none of medicine's beneficiaries will deny that medical care—the art and science of medicine—is in a rare state of turmoil and revolutionary change.

A recent issue of *The New England Journal of Medicine* features "unsolicited essays" by practicing physicians whose comments are pertinent to family physicians. The essays are introduced by *The New England Journal of Medicine's* distinguished editor, Arnold S. Relman, M.D., who pointed out that the three articles "speak to a common theme: the effect of the current revolution in the organization and financing of medical care on the private practice of medicine." They also speak eloquently to the consequences of that revolution for the future welfare of the people served by American physicians.

In his introductory comments, Dr. Relman predicts that "independent office practice as we have known it is not likely to continue much longer as the dominant mode of medical care." He suggests that what remains to be seen is whether, in this new climate of group practices and contractual arrangements with health plans or other third parties, physicians will be able to maintain their influence and autonomy as patient advocates. To do so, Dr. Relman declares that "physicians must rededicate themselves to the traditional ethics of the profession" and "work together to help solve the problems responsible for the discontent so compellingly described" by his essayists and, I believe, widely shared by many other colleagues.

Implicit in these essays are a variety of extremely troublesome questions and problems confronting the profession. In her essay, Roberta Berrien, M.D., a family physician practicing in a rural community in Western Massachusetts, discusses the loss of three practice partners in succession: one left for a salaried post in the Veterans Administration, the second was employed by local industry and the third took a position with an insurance company. Aside from the trauma of these interruptions in shared services and working relationships in a practice that requires more than a single physician, Dr. Berrien has become so distressed by her recurrent setbacks that she now acknowledges, after three months of vain effort to replace her last partner, she is "driven to consider a job in hospital administration."

"If there are so many rewards to be had in the private practice of medicine," Dr. Berrien asks, "why then are we leaving in such numbers?" The answer, she suggests, "is complicated but lies in the frustrations primary care physicians now face in private practice: in training programs that emphasize acute patient care, but teach less about outpatient care, and essentially nothing about running a business."

Dr. Berrien speaks of the degrading process of collecting fees. "My patients seem angry at having to pay me," she says, even though "they express devotion and appreciation of the kind of care I give them." She encounters patient resentment if their insurance fails to cover an office visit, and is pressured to invent diagnoses when insurance will not cover a "routine" check-up.

Dr. Berrien's most serious complaints relate to her dealings with third parties, particularly with the Massachusetts Blue Cross/Blue Shield: low fees for cognitive services, fee limits arbitrarily set by the carriers and the total preclusion of a physician's right to negotiate charges. Diminishing income, restricted fees and charges, tardy payments, rising expenses, confused and querulous patients, and a general sense of harassment and frustration with the bureaucracy, public and private, are unlikely to produce a happy, productive environment for the dedicated physician. Dr. Berrien's situation typifies this increasingly unhappy practice setting.

In his essay, "Medical Practice in the Competitive Market," adapted from a paper he presented in May 1986 before the academies of medicine of Lucas and Toledo counties in Ohio, Philip R. Alper, M.D., an internist in Burlingame, Calif., recounts a recent incident in which he referred a patient to a local hospital for intensive chemotherapy of acute myelogenous leukemia. He discovered this condition while treating the 54-year-old man for a sprained back. His patient had been admitted with notification that the hospital had no contract with the patient's health plan, implying that he might have no

---

JAMES E. BRYAN, Washington Correspondent, *American Family Physician*.

Reprinted from *American Family Physician*. Copyright 1987 by American Academy of Family Physicians.

insurance coverage for the expected six weeks or more of hospitalization that would determine his outcome.

Dr. Alper was troubled by the complexities and potential disasters facing his patient, and about his role as a party to his patient's plight. He reflected that "it looks as though medicine will be increasingly practiced in board rooms and court rooms, and physicians will sally forth to do battle with one another, armed with advertising and investment capital, and protected by contracts and memberships in three-letter plans."

Dr. Alper finds that the rush to commercialize or industrialize medicine bewilders physicians who instinctively feel that "medicine, in the most fundamental sense, is not a business," suggesting that "there is a point beyond which mixing business and medicine stops making sense."

Dr. Alper notes that the currently dominant political ideology urges "everyone in health care to compete, and may the best man, woman or enterprise win." This ideology implies that "unsound" (i.e., unprofitable) enterprises should fail and the good ones (whatever that means) succeed "however much medicine fails to fit the business model." He asks, however, "Why the frenzied speed of change?" The answer he finds is the age-old thirst for money and power. He suggests this trend has slipped into a profession that for so long found unique power, deep popular affection and adequate financial reward in a special service to mankind.

Dr. Alper warns of the prospect that, at its present pace and progress, the industrialization of medicine, with its $400-billion pot, will culture a legion of health consultants, attorneys, brokers, entrepreneurs, administrators and even academicians who will constitute a "new class of medical gurus" whose "combined influence. . .should not be underestimated."

It is certainly not a bold surmise that the present and prospective attraction of medical care services as a commercial bonanza is, as Dr. Alper suggests, "the main reason why the United States is the only Western democracy to choose the commercialization of medicine over the regulation or socialization that we have seen elsewhere." And, he adds parenthetically, that "it still remains to be determined whether business control of medicine will be any more salutary than government control."

The remainder of Dr. Alper's presentation comprises a closely reasoned catalog and analysis of the many factors inherent in the commercialization of medicine which, in his view, vitally threaten the professional status and function of American physicians.

The two essays detailed in this column, along with a third, "The Physician Rebellion," which also appears in *The New England Journal of Medicine* and portrays the rising disaffection within the profession toward corporate control, are worthy of review by family physicians.

CALL TO CONTRIBUTORS

Members of the Connecticut State Medical Society reading papers before other organizations are requested to submit their papers to the JOURNAL for consideration by the Board of Editors for publication. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult **INFORMATION FOR AUTHORS**. This material may be obtained from the *Journal* office. Adherence to the instructions will prevent delays both in acceptance and in publication.

Please send them to:

Robert U. Massey, M.D., Editor
Connecticut Medicine
160 St. Ronan Street
New Haven, Connecticut 06511

Six Poems

MICHAEL MIRANDA

Anatomic Dissection: The Epoch

A privelege, they say,
for me to enter a
half-lit cavern,
a barren womb
which held another's soul.

Reflect, they say,
the thickened skin
which protects twisted spine
shaped by God
to bear a burden
now gone.

Identify, they say,
the phrenic nerve
which ignores the heart,
cables the diaphragm
to fill the lungs,
empty.

An Epoch, they say,
a beginning
which estranges me,
dulls feeling,
but will make me a healer.

Medical School: The basic science years.

Driven,
like insects to food,
or drawn,
as children are to kindness.

We gather,

restlessly,

to sit,
to stir,
to listen,

as old men lecture.
Their words and manners
weighed carefully,
softened by the years
like blue jeans.

Is this what tomorrow
holds for this class?

Will we, in raw innocence,
burst from the well worn classroom,
like screaming fireworks in July,
only to fade into the night?

And what of success?

Will success
be like reaching for sunbeams—
finding a moment's warmth
then an empty hand.

MICHAEL MIRANDA, Fourth year medical student, University of Connecticut School of Medicine, Farmington, CT.

The Histology Review

Necks strained skyward,
like baby chicks
for food.

As the class watched
the flutter of
colorful slides.

Of cells,
millions of cells,
caught in a moment
of their everyday life.

We stare,
the cognescenti,
trying to understand life
through still pictures.

Our Midnight Talks

"Your mother and I have been talking..."

My father is dying as he speaks to me,
the blue-soft moons, his eyes grow dull and
glassy as we hush-talk in the night.

"...when spring comes we'll put in..."

His slow, steady speech stops often as
he pulls life from the autumn-leaf glow
of endless, crisp, white cigarettes.

"...We thought it would be best if..."

His leatherskin hand slowly rubs
a stubbled jaw. His tired smile seems
to warm this cold night.

"...God willing, you'll be home by then..."

Leaving, I clutch the image of him
and our midnight talks so that when he's gone
in the darkness I'll never be alone.

Money Talks

How can I read the funny papers
knowing you're with him?

The phallus in the hand-made suit
seems to have it all, doesn't he?

You quipped it was an easy choice
between cotton and cashmere but

I thought you knew snails and escargot
came from the same shell.

The Ballet Slippers

White downy leather,
trimmed in silk,
hang on the wall
of the old cobbler's shop
of orange cedar and brown oak.

They're waxen drippings
from a candle that burned
in the tired, balding man
long ago.

I stare at them
through a dust-spotted window,
the cracked sidewalk
beneath my feet.

I remember the ghost
they were made for—
his daughter, my love—
when she danced
in those ballet slippers.

CSMS Members:

Let's Talk About A New Concept In Health Care.

Century 2000.

Century 2000. A Preferred Provider Program in which more than 4,000 health care providers in this state are now participating.

Century 2000. Providing quality with an emphasis on preventive care.

Century 2000. Reducing costs by encouraging members to use its managed care network of Preferred Providers.

Century 2000. For information on how you can become a Preferred Provider call 1-800-922-1742 extension 5137.

Blue Cross
Blue Shield
of Connecticut

Editorial

A Prescription for Successful Aging

A profound revolution in the structure of American society and in the character of our health care needs is unfolding with increasing vigor and turbulence. Survival into the seventh, eighth and ninth decades of life has quietly become the routine experience of our citizens, and Connecticut ranks first among New England states by percent population over the ages of 75 and 85 years. Life expectancy at birth nationwide has jumped dramatically from 48 years less than a century ago, to 75 years at present, and predictions are for continuing increases. This success derives from numerous confluent birth, death and immigration rate changes, but the consequence of this longevity explosion is a previously unimagined growth of our older population to proportions which are staggering as we consider the rising costs of health care. The less than 12% of the population over 65 years of age consumes triple its percentage representation in health care expenses, and that geriatric market share, which continues to grow rapidly, exceeded 100 billion dollars in 1982. The highest volume health resource consumers among the elderly are those individuals who are most numerous in Connecticut, the very old—over 75—and the oldest old—over 85 years of age. This demographic imperative has driven health care scientists, providers, policy makers and planners to join the previously tiny group of investigators studying aging. As a result, an interdisciplinary biological, behavioral and clinical data base unique to human aging has been uncovered and augmented in recent decades.

Several thematic accomplishments of research in aging are noteworthy. First, it is now generally acknowledged that there is a defined and ample knowledge base in clinical care, cutting across the disciplinary lines of most health professions; and essential to management of illness in old age. In order to teach this new geriatric information, academic positions are being created at medical schools and academic clinical institutions across the country. Second, an appropriate emphasis upon well-designed longitudinal and cross-sectional studies of carefully screened healthy older people has led to increasing awareness of numerous biobehavioral changes, usually decremental, which are inevitable and irreversible with advancing age. Third, the integration of these two bodies of knowledge has led to the recognition that age-related changes in healthy humans set the stage and write the script for the differences in disease behavior and outcome in older persons.

And now we are asked to cope with a new and heretical concept, that the decremental doctrines of the past 20 years are not uniform or unavoidable, but rather comprise the "gerontology of the usual." Rowe and Kahn[1] (reprinted in this issue) point out that although accurate, many of the gerontological studies of recent decades describe common, ordinary or usual aging; in which adverse effects of immoderate eating, inactivity, smoking, drug use, and detrimental psychosocial influences exaggerate or complicate the otherwise modest decremental organ impact of chronological age. After citing a few startling examples of minimal or no change in human functions previously thought to decline substantially with age (glucose tolerance, bone density, cognition), they urge scrutiny of the minority of elders whose lifestyle, genes and good fortune have collaborated in the most successful fashion. In addition to freedom from identifiable disease, the usual entry criterion for previous studies of normal aging, Rowe and Kahn urge further fractionation of the healthy elderly group to document heterogeneity of vigor and then examine its origins. Although not the mainstream experience, successful aging is a crucial new principle in the philosophy of gerontological science; and is yet another addition to the knowledge base to be mastered by clinicians caring for older persons. We look forward to studies which will not only further define the small group who are aging successfully, but also will identify the factors which permit the writing of a personalized prescription for all who aspire to the most vigorous old age possible. And yet usual aging, with its burden of multiple diseases superimposed, will persist and require continuing augmentation of the existing knowledge base; and its application to sick older persons.

Now that most medical scientists and educators have begun to "discover" and embrace the body of knowledge comprising gerontology and geriatric medicine, an urgent and sizable shortage of academic faculty in geriatrics has been spotlighted. Beginning with the Institute of Medicine report on Aging and Medical Education in 1978, continuing with the Rand report on Geriatric Manpower and Training in 1980, and peaking with the National Institute on Aging's reports on Education and Training in Geriatrics and Gerontology in 1984 and 1987, there is widespread recognition of an increasingly urgent need in the health sciences for well-trained academic faculty who will systematically enrich and teach the knowledge base required

---

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

for successful management of disease in our increasingly numerous and frail old population of Americans. These teaching and research faculty take particular time and effort to train. There are no 90-day-wonder gerontologists or geriatricians. These personnel are not being developed in adequate numbers by current training programs, as documented by the reports noted above. The demographics have overwhelmed the "random chance" production mechanism of faculty in aging. And nowhere will the impact of their shortage be felt more acutely than in this, the "oldest" of the New England states, our Connecticut.

Formal training programs of substantial magnitude are required to recruit, train and retain new faculty in geriatrics. They will enrich university faculties and clinical training sites by their research productivity and teaching concerning health care of older persons. Geriatric fellowships are currently quantitatively inadequate to achieve these goals, both in number of programs and in annual graduates per program. Funding is, for the most part, derived from clinical activities or grants for research training submitted by and awarded to individual fellows. Existing programs must be strengthened and new ones created to generate two kinds of faculty, one to conduct the research which enlarges the knowledge base of geriatrics and the other to ensure its application to older patients. All new faculty must master the clinical skills of geriatrics. One career track will produce teaching-intensive faculty who will educate undergraduate and postgraduate health professionals in the mainstream of medical education. The other track, usually involving more training, will yield research-intensive faculty who will produce the new knowledge to further illuminate health care of older persons. A recent Institute of Medicine report[2] urges funding of Centers of Excellence to train these new leaders in academic geriatrics. Concentrated attention to faculty development in geriatrics, in Connecticut and nationally, is our best chance to learn and disseminate the keys to successful aging.

Richard W. Besdine, M.D.
Director, Travelers Center on Aging,
Travelers Professor of Geriatrics and Gerontology,
University of Connecticut School of Medicine,
Farmington, CT

REFERENCES

1. Rowe JW, Kahn RL. Human Aging: usual and successful. Science 1987, 237:143.
2. Committee on Leadership for Academic Geriatric Medicine. Report of the Institute of Medicine: Academic geriatrics for the year 2000. J Am Geriatr Soc 1987, 35:773.

Connecticut's
Medical
Courtesy Card
for Seniors

COMMON QUESTIONS

Q. As a Medical Courtesy Card Enrolled physician, what benefit am I providing to senior patients who have the Medical Courtesy Card?

A. You are agreeing to accept the assignment method of payment for Medicare covered services. This means:

- Your office submits the claim to the Medicare carrier for direct payment. When doing so you must submit a signed Health Insurance Claim Form (HCFA 1500) with Box 26, "ACCEPT ASSIGNMENT," checked **"yes."**
(This form **must** also accompany a Super Bill submission.)
- You agree to accept the reasonable charge, as determined by the carrier, as the full charge for covered services on that claim.
- You bill the patient for the 20% coinsurance and $75 deductible charges that Medicare does not reimburse you.

Remember, unless each of these steps is properly completed, you will not be recorded as having accepted assignment for your patient. The Medicare carrier will gladly answer any questions you might have concerning the submission of Medicare claims and can be reached at 269-5207.

The President's Page

Medicare Assignment

In the past month, for a change, I have only had to commute to such places as New Haven, Wallingford, and Hartford. It's summertime, and the three H's—hot, humid, and hazy—prevail. Staying at home and enjoying one's precious time off is more appealing. Also, one had better do this "President's Page" before the dreaded deadline call.

As you all may know, your Connecticut State Medical Society, with the concurrence and endorsement of the county societies and associations, two years ago created a voluntary Medical Courtesy Card program to assist elderly citizens who were having difficulties meeting medical expenses not being met by Medicare. Earlier, congressional mandates for reduction in Medicare expenditures resulted not only in reduction and recalculation of Medicare "allowable" fees, but in increasing denials of coverage for services we physicians deemed necessary and delivered to those citizens in need.

More recently, to our north, in the Commonwealth of Massachusetts, the son of an immigrant—who was a Harvard-educated family physician—signed a bill that must have caused his father to spin in his grave. It was felt by many that this bill, Chapter 475 of the Massachusetts Statutes of 1985, violated the Supremacy Clause of the United States Constitution by taking away the federally established *option* of physicians to charge Medicare beneficiaries more than the reimbursement level set by the United States Department of Health and Human Services. This option was provided under the federal Health Insurance for the Aged Act, popularly known as Medicare, in 1965, and reaffirmed under the Deficit Reduction Act of 1984, paragraph 1395, which made signing a Medicare participation agreement "voluntary."

Massachusett's Chapter 475 was also felt to violate the Due Process Clause of the Fourteenth Amendment to that Constitution in that it required Massachusetts physicians, *as a condition of licensure*, to forego their federally-created option regarding billing. The Due Process Clause is believed to require that a condition of licensure must have a rational connection to the "fitness or capacity" of the licensee. [*Schware v. Board of Bar Examiners* 353 U.S. 232, 239 (1957)] This requirement stems from the special importance in our constitutional system of the right to pursue one's chosen occupation. [*Hampton v. Mow Sun Wong*, 426 U.S. 88, 102 n.23 (1976)] This Chapter 475 condition for licensure bears no rational connection to "fitness or capacity nor to his or her level of training, experience, or skill." Nor does a physician exercising a federally authorized billing option under a wholly federal program *ipso facto* demonstrate in any way that he or she lacks ethical fitness to treat patients.

On 30 March 1987, Judge Breyer of the United States Court of Appeals for the First Circuit sustained the judgment of District Court Judge Keeton that Chapter 475 violated neither the Supremacy Clause nor the Due Process Clause of the U.S. Constitution. I suggest that you all read the briefs and decisions and draw your own conclusions while waiting for appeal of this decision to the U.S. Supreme Court.

It should be noted that intervenors listed were Massachusetts Senior Action Council, Inc. and Massachusetts Association of Older Americans, Inc. represented by the Greater Boston Elderly Legal Services and the Greater Boston Legal Services.

When the 1986 session of the Connecticut General Assembly declined to enact legislation similar, or identical, to that of Massachusetts, forces similar to those cited above—along with Connecticut union representatives—developed a strategy specifically designed to elect legislators more favorable to their views in this matter. These legislators formed coalitions, some strange, and enacted Connecticut Medicare Assignment legislation (P.A.87-356) over not only the protestations of physicians, but of the media which mostly asked that the CSMS Courtesy Card program be given a chance. In the final analysis, the issue became a party issue—Democrat versus Republican. A number of legislators acknowledged that they voted for the "party line" rather than their consciences—a sad commentary on integrity. As one said, regarding the constitutionality issue, "Take it to court"...a process he knew would take years.

However, rather than looking at this legislation as "a glass half empty," let us look at it as a "glass half full." Your efforts, personally and through the Society, resulted in the legislation being enacted as voluntary, not mandatory, legislation. This modification was not exactly to the liking of the proponents of the original legislation. Being law-abiding citizens, we must now work with the legislation to the best of our ability. We must not lose sight of the fact that we are still working to maintain the same high standards of providing the best quality medical care in the world for our patients, despite the obstacles we now face. All of our years of training have been for providing care to meet such standards. We must not give those who are still striving to take away our constitutional rights (and eventually theirs) the leverage they need to call for making this legislation mandatory. *We must make the Medical Courtesy Card program an unqualified success.*

For those of you who have not familiarized yourselves with the legislation, the following is a summary of the main points of P.A.87-356.

1. The program requires that (a) *every licensed physician,* as of 1 October 1987, must conspicuously post his or her policy regarding Medicare assignment and inform all eligible persons of such policy prior to the delivery of care and services; and that (b) *physicians with Medicare provider numbers* must prominently post clearly legible signs stating their office policies related to Medicare payment and processing.

2. The *voluntary* Medical Courtesy Card program will be administered by your Connecticut State Medical Society under a contract to be concluded with the Connecticut Department of Aging (DOA).

3. The program does *not* require a physician to treat every Medicare beneficiary. It *does* require *participating* physicians to accept Medicare assignment on all Connecticut Medicare Part B enrollees who have adjusted gross incomes, as filed with the IRS, of 150% of ConnPACE (DOA's prescription drug plan) ceilings of $13,300 for single persons and $16,000 for a married couple, which works out to be $19,950 and $24,000 respectively.

4. This program specifies that the ConnPACE identification card, which meets DOA's *means* test, may be substituted for the Medical Courtesy Card.

5. The program requires *by 1 July 1988* (and quarterly thereafter) that *on average*: (a) 85% of Medicare claims processed on a statewide basis be taken on assignment; (b) 85% of physicians with Medicare provider numbers *in each county* participate in the Medical Courtesy Card program; (c) 80% of the physicians with Medicare provider numbers *in each specialty* participate in the Medical Courtesy Card program; and (d) 50,000 eligible individuals be enrolled and maintained in the program. If these levels are not achieved and maintained, the DOA *must* adopt regulations *requiring* all eligible physicians to accept Medicare fees as payment in full for those beneficiaries meeting the ConnPace-indexed income limits.

6. The program requires a *civil penalty of up to $1000 per violation* of the regulation by a physician. Any complaints about a physician would have to be made to the Connecticut Medical Examining Board.

7. The program establishes an advisory committee composed of senior citizens, physician representatives, the Commissioner on Aging, and legislators to monitor the Medical Courtesy Card program.

8. The program establishes a task force of interested parties and legislators to develop a plan for Medicare supplementary catastrophic health coverage for Connecticut residents over 65 years of age *or* disabled.

9. The program appropriates $79,000 to the DOA, effective 1 July 1987, to implement the legislation for fiscal year 1987-88.

Your victory in retaining a voluntary approach to participation in the CSMS Medical Courtesy Card program can be maintained only if the above elements of the legislation are met. A 95-100% participation rate would strengthen our future negotiating positions with the legislature. Continued efforts to educate your legislators to consider health care issues medically, rather than politically, are strongly recommended.

It will be an interesting year.

James P. Orphanos, M.D.
President

Reflections on Medicine

Aiming above the Mean

ROBERT U. MASSEY, M.D.

One of the principle aims of geriatricians has been to change some of our attitudes toward aging. In this issue of *Connecticut Medicine* we have republished a recent article from *Science*, entitled "Human Aging: Usual and Successful," in which the authors, John W. Rowe and Robert L. Kahn, remind us that we have drawn our conclusions about old age by studying populations who were either sick or well, the normal or usual, rather than the successful elderly; we have, in their words, created "a gerontology of the usual."[1] We take for granted heterogeneity within our own age group, which is eternally middle-aged, but lump the elderly into a universal average: frail, forgetful, depressed, unwell, and generally helpless.

The psalmist must have had averages in mind when he wrote:

"The days of our years are threescore years and ten; and if by reason of strength they may be fourscore years, yet is their strength labor and sorrow; for it is soon cut off, and we fly away."[2]

Osler and Cicero, living two millenia apart, differed from one another in their opinions of old men. You may recall Osler's comments on "the uselessness of men above sixty years of age, and the incalculable benefit it would be in commercial, political, and in professional life if, as a matter of course, men stopped work at this age."[3] In another place he confessed that he had been only half serious, and quite clearly excluded women from his generalization.

Cicero, on the other hand, in *De Senectute*, surely had successful aging in mind: "Intelligence, and reflection, and judgment reside in old men, and if there had been none of them, no states could exist at all."

Reflecting upon averages in anything human leads often to disheartening conclusions; regulators and planners deal mostly in averages, and as a consequence, their work is marked by unrelieved dullness. Societies and organizations growing out of their uninspired activity are almost always described in shades of gray; they discard the exceptional, putting in its place the exceptionally mediocre.

Rowe and Kahn have reminded us of those many old men and women who are the successful elderly. We all know members of this hardy crowd: the 86-year-old biochemist who recently has had his grant renewed; the 93-year-old retired surgeon who has just published a delightful autobiography; the 83-year-old carpenter who continues to build with skill and imagination; the 90-year-old stock-broker who is still making money in the market; the 100-year-old woman who wins at bridge more often than she loses.

Each one of these successful old men and women is proof that age alone does not cause those attributes which, until recently, we have lumped together in the adjective *senile*. If these successful elderly are not simply those who were lucky in the gene lottery and landed at the upper extremity of a distribution curve, we ought to be looking hard for what they did along the way to improve their chances. In fact we have some pretty good hunches about successful aging, and they turn out to be about the same as the hunches most people, including physicians, have always had: self-control to assure moderation in all things, the support of loving family and friends, cheerfulness and peace of mind, good fortune, and common sense. What is needed is clearer demonstration of the effect of these psychosocial factors on health; even more than that, we would have to invent a society which places higher value on successful living than on material success, no easy task in our competitive world.

It is certain that most of our patients will not escape old age; it is equally certain that few of them want to live longer than their good health and good cheer will take them. It may not be possible to eliminate all disease and disability at the end of life, but the successful elderly tempt us to believe that there is a way to do it. What they also would tell us, I suspect, is that they never considered living their lives with longevity in mind.

REFERENCES

1. Rowe JW, Kahn RL, Human aging: usual and successful, Science 1987, 237:143-149.
2. Psalm XC, 10.
3. Osler W, "The Fixed Period," in Aequinimitas, The Blakiston Co, Philadelphia, 3rd Edition, 1932, p 382.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

NEW YORK FERTILITY
RESEARCH FOUNDATION, INC.

For the Investigation of Problems of
Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

MATERIAL printed in *Connecticut Medicine*, the Journal of the Connecticut State Medical Society, is covered by copyright. Written permission must be obtained before reproducing, in part or in whole, any material published in *Connecticut Medicine*.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

PROSPECTIVE authors preparing manuscripts for submission to *Connecticut Medicine* should consult "Information for Authors." This material may be obtained from the *Journal* office. The manuscript, including references, should be typed double spaced; all material, including figures, should be submitted in duplicate. The transmittal letter should designate one author as correspondent and include his complete address and telephone number.

MANUSCRIPTS should be submitted to the Editor, Robert U. Massey, M.D., *Connecticut Medicine*, 160 St. Ronan St., New Haven, CT. 06511. Manuscripts are received with the explicit understanding that they are not simultaneously under consideration by any other publication.

ALTHOUGH all advertising material is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

REPRINTS are available at an established schedule of costs. A reprint rate and order form is sent to the author with his page proofs.

SUBSCRIPTION RATE: The subscription price per year for members of the Connecticut State Medical Society is included in the annual membership dues. The subscription price per year for nonmembers is $15.00 (Canada and foreign, $30.00). Single copies $4.50.

ADDRESS editorial and business correspondence to:
Connecticut Medicine, 160 St. Ronan St., New Haven, CT. 06511. Tel. (203) 865-0587.

CONNECTICUT MEDICINE is the official publication of the Connecticut Medical Society, a voluntary non-profit association organized for scientific and educational purposes, published monthly for members of the Connecticut State Medical Society.

CARAFATE®
(sucralfate)

BRIEF SUMMARY

CONTRAINDICATIONS
There are no known contraindications to the use of sucralfate.

PRECAUTIONS
Duodenal ulcer is a chronic, recurrent disease. While short-term treatment with sucralfate can result in complete healing of the ulcer, a successful course of treatment with sucralfate should not be expected to alter the post-healing frequency or severity of duodenal ulceration.

Drug Interactions: Animal studies have shown that the simultaneous administration of CARAFATE with tetracycline, phenytoin, or cimetidine will result in a statistically significant reduction in the bioavailability of these agents. This interaction appears to be nonsystemic in origin, presumably resulting from these agents being bound by CARAFATE in the gastrointestinal tract. The bioavailability of these agents may be restored simply by separating the administration of these agents from that of CARAFATE by two hours. The clinical significance of these animal studies is yet to be defined.

Carcinogenesis, Mutagenesis, Impairment of Fertility: No evidence of drug-related tumorigenicity was found in chronic oral toxicity studies of 24 months' duration conducted in mice and rats at doses up to 1 gm/kg (12 times the human dose). A reproduction study in rats at doses up to 38 times the human dose did not reveal any indication of fertility impairment. Mutagenicity studies have not been conducted.

Pregnancy: Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS
Adverse reactions to sucralfate in clinical trials were minor and only rarely led to discontinuation of the drug. In studies involving over 2,500 patients, adverse effects were reported in 121 (4.7%). Constipation was the most frequent complaint (2.2%). Other adverse effects, reported in no more than one of every 350 patients, were diarrhea, nausea, gastric discomfort, indigestion, dry mouth, rash, pruritus, back pain, dizziness, sleepiness, and vertigo.

DOSAGE AND ADMINISTRATION
The recommended adult oral dosage for duodenal ulcer is 1 gm four times a day on an empty stomach.

Antacids may be prescribed as needed for relief of pain but should not be taken within one-half hour before or after sucralfate.

While healing with sucralfate may occur during the first week or two, treatment should be continued for 4 to 8 weeks unless healing has been demonstrated by x-ray or endoscopic examination.

HOW SUPPLIED
CARAFATE (sucralfate) 1-gm pink tablets are supplied in bottles of 100 and in Unit Dose Identification Paks of 100. The tablets are embossed with MARION/1712. Issued 3/84

References:
1. Korman MG, Shaw RG, Hansky J, et al: *Gastroenterology* 80:1451-1453, 1981.
2. Korman MG, Hansky J, Merrett AC, et al: *Dig Dis Sci* 27:712-715, 1982.
3. Brandstaetter G, Kratochvil P: *Am J Med* 79(suppl 2C):36-38, 1985.
4. Marks IN, Wright JP, Gilinsky NH, et al: *J Clin Gastroenterol* 8:419-423, 1986.
5. Lam SK, Hui WM, Lau WY, et al: *Gastroenterology* 92:1193-1201, 1987.

Another patient benefit product from
PHARMACEUTICAL DIVISION
MARION
LABORATORIES INC
KANSAS CITY MO 64137

1594H7

Facing AIDS: Health Practitioners and Public Policy

JOSEPH M. HEALEY, J.D.

The dramatic emergence of AIDS as a public health problem of the first order is a tragedy with which we are well familiar. On a daily basis, we have been overwhelmed with radio, television, and newspaper accounts of this disease and of the enourmous toll it is exacting. Among the many issues raised is a series of complex ethical and legal questions for which there are no self-evident, obvious answers. We are searching for a coherent, comprehensive policy for dealing with these problems. The task is complicated by the climate of fear, anger and mistrust which the rapid spread of AIDS and incomplete understanding of it has generated. Physicians and other health professionals have special roles to play in confronting these contaminating influences and in contributing to the development of a public policy which is fair and compassionate for all parties. This month's column will explore some aspects of these roles.

One important starting point is the recognition that the development of such a public policy does not begin in a vacuum. There are precedents from past attempts to deal with dangerous diseases which provide a basis for considering the legal and ethical problems. For example, one set of issues involves the extent to which the state may regulate individual behavior to protect third parties. Public health strategies such as compulsory screening, case finding, isolation, and quarantine have been suggested as potential means for confronting AIDS. Such strategies have been employed before in the context of contagious diseases earlier this century and a substantial body of law and ethical literature has been devoted to analyzing their proposed use and defining the boundaries of legitimate state intervention in the private lives of its citizens. A second set of issues involves the extent to which health practitioners have a legal and ethical obligation to take care of patients with AIDS or with a positive HIV test result, despite the presence of some degree of danger to the practitioner. Again, we are not left without the guidance of past experience. There is a substantial body of legal and ethical literature devoted to the contractual dimension of the doctor-patient relationship and to the ethical obligations of doctors to serve patients in need. A final example involves issues of confidentiality and the extent to which a health practitioner's duty of confidentiality to an AIDS patient is outweighed by a duty to disclose risk of danger to known potential victims. Again, we are not left to start from the beginning but have a substantial literature dealing with the duty to warn in psychiatry and the duty to notify the state in cases dealing with reportable diseases. As each of these examples suggests, it is important not to overstate the uniqueness of the problems raised by AIDS. There are important ethical and legal principles upon which we can and should build.

The second starting point involves the special obligations which doctors and other health professionals have to help create a responsible atmosphere free of the unreasonable fear and anger which can unfortunately lead to the development of policies which punish those whose behavior we do not condone, rather than provide care and support for those who are seriously ill. As voices of reason and good sense health practitioners, as part of their educational role in our society, should challenge such fears and encourage honest examination of the scientific knowledge upon which our policies should be based. By controlling the potential bias inherent in exaggerated fears, it will be possible to promote realistic policies.

JOSEPH M. HEALEY, J.D., Associate Professor, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

HIV Positive Confirmed. Then What?

AIDS is tough to treat. Ruthless to an increasing patient population, it challenges physicians and nurses as never before in their commitment to quality care.

The Spellman Center for HIV-Related Disease at St. Clare's Hospital and Health Center in New York City, accepts the challenge posed by AIDS and HIV infection. The first facility in the tri-state region to devote its resources solely to the care of AIDS patients, the Spellman Center designates its highest priority as compassionate patient care. A dedicated staff provides comprehensive medical, nursing, psychosocial, and dental treatment in an atmosphere that is warm and understanding.

The Spellman Center—a 60-bed Acute Care Unit, Emergency Service, Outpatient, Ambulatory Infusion and Dental Clinics—accepts referrals of patients with CDC-confirmed AIDS or ARC (AIDS-related complex), and those who are seropositive for HIV. Spellman also reaches out to offer testing, counseling and treatment to persons at risk for AIDS.

If you need consultation concerning your patients, or more information, please call Dr. Debra Spicehandler, the Medical Director, at (212) 459-8409.

The Spellman Center also maintains an information hotline for patients with questions about AIDS: 1-800-433-AIDS.

The Spellman Center
for HIV-Related Disease
A Designated AIDS Treatment Facility
St. Clare's Hospital and Health Center

SC

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

From the Executive Director's Office

CALL
SEMI-ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1987 Semi-Annual Meeting of the House of Delegates will be held at the Ramada Inn, 275 Research Parkway, Meriden. The meeting will commence at 10:00 A.M. on Thursday, November 19, and will continue until all business has been concluded.

9:30 Registration and Continental Breakfast
10:00 Call to Order

James P. Orphanos, M.D., President
Lawrence B. Ahrens, M.D., Speaker of the House
Annemarie Welch, M.D., Secretary

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society provides that:

Resolutions may be introduced by any Active, Life Member, Student Member or Postgraduate Physician Member of The Society, in compliance with the following provisions.

a. All resolutions, reports and similar items of business submitted in writing and received at the office of the Executive Director not later than thirty days before the date scheduled for that meeting shall be considered as regular business of the House of Delegates.

b. Component county associations or the Student Member or Postgraduate Physician Member Associations whose meetings are held later than thirty-five days prior to the date of the House of Delegates shall be allowed five days after the close of such meeting in which to submit resolutions, reports and similar items of business to the Executive Director's office and still have such material considered as regular business. In no event, however, may such resolutions, etc., be considered regular business if they are received later than fifteen days prior to the date of the meeting.

c. Reports, recommendations, resolutions or other new business may be presented to the House of Delegates by the Council of The Society at any time and shall be considered as regular business.

d. Any business which does ot qualify as regular business in accordance with the foregoing provisions may be accepted for consideration by a majority vote of the delegates present and shall be referred at once by the Speaker to a reference committee. When business is introduced under the provisions of this paragraph the vote shall be taken without debate, except that the introducer shall be allowed not more than two minutes to explain why it should be considered as regular business.

PROPOSED AMENDMENT TO THE BYLAWS

The following proposed amendment to the Bylaws was presented to the House of Delegates on May 6, 1987 and was tabled for consideration and action at the next regular meeting of the House of Delegates.

In accordance with the Bylaws, this amendment is being published in *Connecticut Medicine* "on one or more occasions prior to the next meeting—at which meeting the amendment shall be taken off the table and acted upon by the House of Delegates."

SUBJECT: LIFE MEMBERSHIP

PURPOSE: To change membership criteria

RECOMMENDATION: Replace Section 4, Par. 1 of Article IV, LIFE MEMBERS, with the following amendment.

Article IV - MEMBERSHIP
Section 4 - LIFE MEMBERS

Par. 1 — Any member of The Society who has retired from practice and has reached his or her 70th birthdate anniversary and has been an Active Member of The Society, or of a medical association of another state having the same or similar criteria for membership, for fifteen or more years immediately preceding said anniversary, or any Active Member of The Society who becomes totally or permanently disabled shall be eligible for Life Membership.

Par. 2 — Any fully retired member of the Society who has been an Active Member of The Society, or of a medical association of another state having the same or similar criteria for membership, for fifteen or more consecutive years immediately preceding application and has not yet reached his or her 70th birthdate anniversary shall be eligible for Life Membership by payment of 20% of regular dues.

Par. 3 — Any member of The Society who's practice has been reduced to twenty hours or less per week as a result of practicing medicine on a part-time basis who has been an Active Member of The Society, or of a medical association of another state having the same or similar criteria for membership, for fifteen consecutive years immediately preceding application and who has reached his or her 70th birthday anniversary shall be eligible for a reduction in dues of 50%.

Par. 4 — A physician eligible for Life Membership may apply for such membership to the Executive Director of The Society and shall become a Life Member on approval by the Executive Director of such application. The Executive Director shall subsequently report this action to the Council. Life Members shall not be subject to dues or assessments except as in paragraphs 2 & 3 above and shall be accorded all the rights and privileges of Active Membership in this Society including the rights to vote and hold office. Exemptions from payment of dues or reduction in dues for Life Members shall become effective on January 1 of the year following eligibility for such status.

PRESENT BYLAW

Section 4 - LIFE MEMBER

Any member of The Society who has been an Active Member of this Society or of the American Medical Association or of constituent associations of the American Medical Association for thirty-five consecutive years or who has reached his or her 65th birthdate anniversary and has been an Active Member of The Society or of the American Medical Association for fifteen or more years immediately preceding said anniversary or any Active Member of The Society who becomes totally or permanently disabled shall be eligible for Life Membership. A physician eligible for Life Membership may apply for such membership to the Executive Director of the Society and shall become a Life Member on approval by the Executive Director of such application who shall subsequently report this action to the Council. Life Members shall not be subject to dues or assessments but shall be accorded all the rights and privileges of Active Membership in The Society including the rights to vote and hold office. Exemption from payment of dues for Life Members shall become effective on January 1, of the year following the 35th year of membership or the anniversary year of their 65th birthday whichever is applicable.

AMA Membership Increase

The AMA Professional Relations and Membership Group announced in a report that, by mid-May, the AMA had made "solid gains," achieving 76.6 percent of 1987 membership goals. This is slightly better than the 76.1 percent pace of this time last year and membership goals are higher this year than last year.

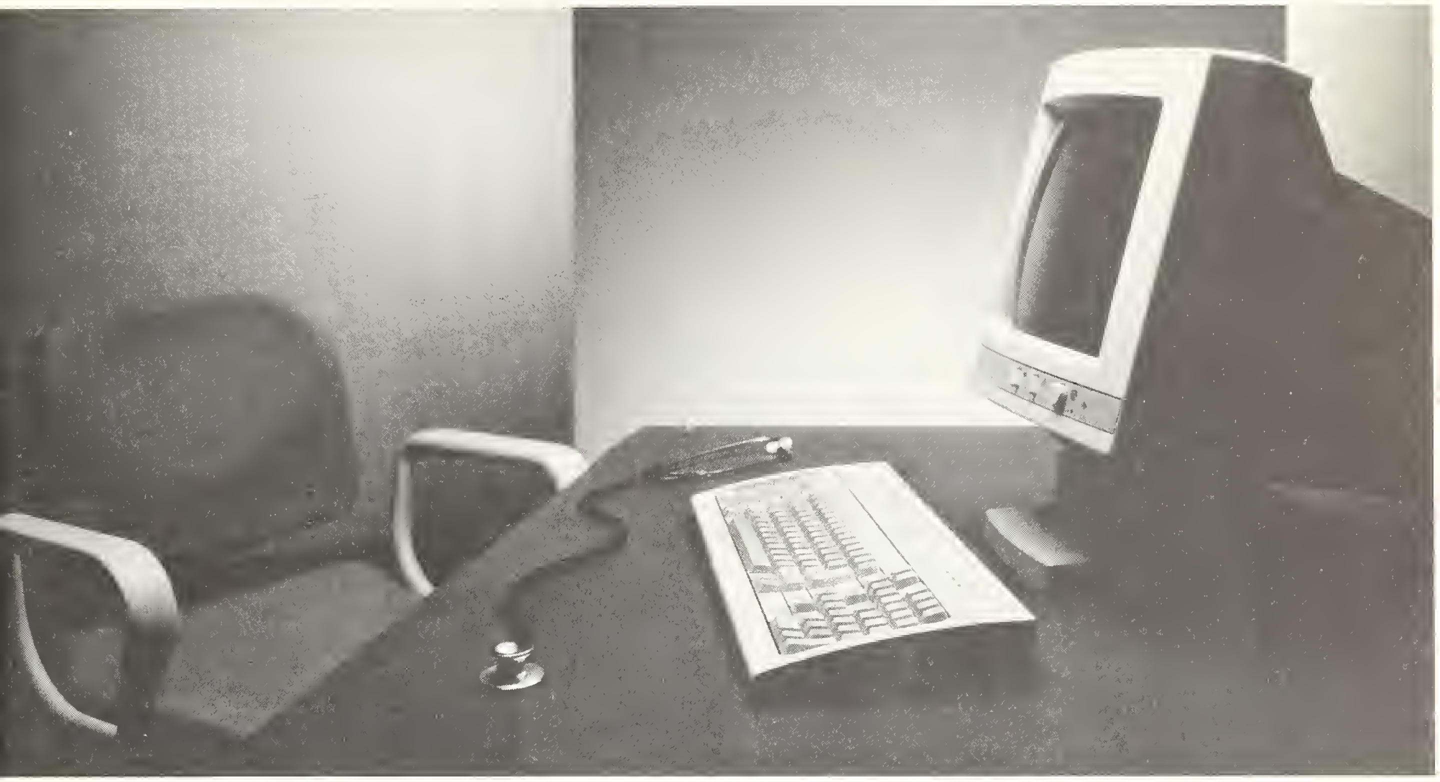
As of mid-May, there were 186,856 dues-paying AMA members, compared to 179,248 at that time last year, a difference of 7,608 more new members. According to the report:

- A total of 143,758 members were in the regular category, which registered a 5.5 percent increase over the same time period last year.
- At the end of 1986, 52 percent of all medical students were AMA members.
- At the end of 1986, AMA membership accounted for 43.4 percent of the entire medical population (physicians and medical students).

The newly unified states of Utah, Kansas, Mississippi, and Virginia are credited with bringing in new members. Unified membership means that physicians who become involved in organized medicine must join the American Medical Association as well as their state and county medical societies.

— AMA *Hospital Medical Staff Section*, Newsletter, July 1987.

How More Than 2000 Doctors Have Eased The Pain Of Managing A Practice.



If your practice is like a lot of others, you often spend more time on office problems than on the health problems of your patients.

Our one easy-to-use, fully-integrated computer system can take care of billing, provide financial updates, help you market your practice. And give you more time to do what you went to medical school for.

"Medic continues to be the best system for our clients."
Thomas Booth, president of The PM Group, Battle Creek, Michigan

When this nationally-recognized medical consulting firm recommends a product to their clients, you know it's been carefully scrutinized. After reviewing over 60 medical systems, The PM Group judged our system to be the best. And the one that offers the best support and service.

"It's helped our cash flow tremendously."
Mike Griga, general manager of Mayfield Neurological Institute, Cincinnati, Ohio

Changing the billing system from once a month to once a week is just one way Medic has improved the bottom line of the nation's largest neurosurgery group. Our system can ease the process of sending statements and reduce the number of uncollected bills. Plus, our easy-to-understand printouts help you keep better track of your financial condition.

"When lightning knocked out our system, Medic worked through the night to get it up and running quickly."
Doug Speak, assistant administrator of Suncoast Medical Clinic, St. Petersburg, Florida

We'll do whatever it takes to keep your system working. Day or night. We have a toll-free STAT line to handle questions and problems. And there's a STAT PLUS line from our support center to your system for software updates and diagnoses.

So if you're looking to increase the efficiency, productivity and profitability of your practice, take a look at the Medic Computer System.

Over 2000 physicians in more than 600 practices throughout the U.S. are calling it a minor medical miracle.

medic
computer systems

6601 Six Forks Road, Suite 150
Raleigh, North Carolina 27609

Telephone toll-free: 1-800-334-8534
North Carolina: 919-847-8102

Other offices: Cincinnati, Ann Arbor
Orlando, Pittsburgh, Richmond

Please tell me how Medic Computer Systems can help my practice.

Name____________________

Address____________________

City____________________

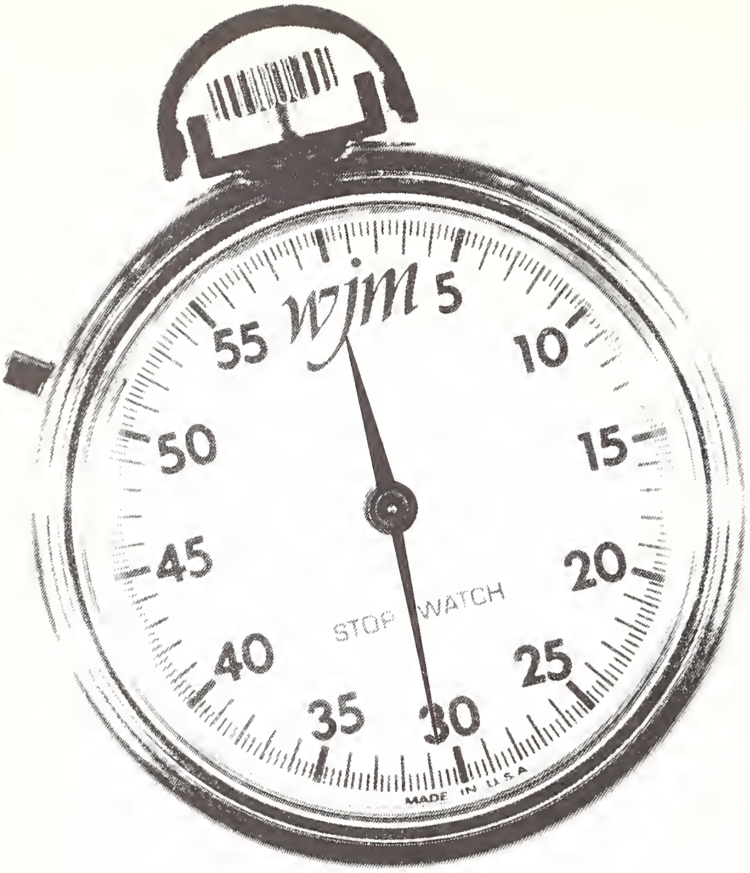
State__________ Zip__________

Phone (   )____________________

Number of physicians in practice__________

Specialty____________________

Medic Computer Systems
6601 Six Forks Rd., Suite 150
Raleigh, North Carolina 27609



TIME to subscribe

Consider a few features of
The Western Journal of Medicine:

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

Enclosed is $________ to cover ________ subscriptions.
Subscription renewal ☐ Regular subscription ☐
Foreign subscription ☐

TO: ________________________________

Street ________________________________

City/State/Zip ________________________________

Specialty ________________________________

Gift Card to read "From ________________________________"

The Western Journal of Medicine

Please mail this coupon with
enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year,
$90 2 years

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

AMBULATORY CARE

Full or Part time position available immediately for physician in established Walk-In Center in Branford, CT. Please send C.V. to: Harry Ardolino, M.D., Coastline Medical Center, 9 Business Park Dr., Branford, CT 06405 or phone (203) 481-0818.

New London—Immediate full or part-time position available to work in an established Ambulatory Care Center. Excellent salary and benefits. Send C.V. to Charles M. Parrott, M.D., Nameaug Walk-In Medical Center, 21 Montauk Ave., New London, CT 06320.

EMERGENCY MEDICINE

Full-time positions in satellite and main emergency departments of JCAH-Approved 380 bed hospital, with residency program. Full hospital emergency department privileges. Unique combination of emergency and urgent care medicine. Paramedic base stations in both facilities. Seek EM/FP/IM, BC/BE individual, ACLS, ATLS. ER experience preferred. Highly competitive salary and benefit package. Excellent work schedule. Shoreline area. Contact Gordon Van Nes, M.D., Emergency Department, Middlesex Memorial Hospital, Crescent St., Middletown, CT 06457. (203) 344-6691.

FAMILY PRACTICE

For Sale: Family/General Practice. Excellent location and opportunity. Well-established; financially rewarding. Five minutes from hospitals. Please call evenings 574-1788.

Family practice physician or internist urgently needed for community health center in Hartford. Regular hours, no weekends, malpractice paid. Will consider full or part time. Contact Kurt Myers, M.D., at 236-0857 for more information. E.O.E.

Expanding family practice in Western Connecticut seeking BC/BE family practitioners to join busy four physician group. Highly desirable area. No obstetrics. Send CV to Brookfield Health Associates, P.C., 940 Federal Rd., Brookfield, CT 06804.

FAMILY PRACTICE/INTERNAL MEDICINE

Family practitioner or internist. Board certified or eligible. Position available in 600-bed public psychiatric hospital and psychosocial rehabilitation facility and primarily involves outpatient level of medical treatment for psychiatric patients, as well as medical coverage of employees health clinic. Candidates must possess or be eligible for Connecticut license. Salary $52,560-$68,870 for 35 hour work week with no night call requirement. Benefits include comprehensive medical dental plan, generous holiday, vacation, sick and paid personal leave time, retirement plan and possible staff housing. For further information contact Lawrence Carver, M.D., Assistant Superintendent, Clinical, Norwich Hospital, P.O. Box 508, Norwich, CT 06360. (203) 823-5264. EOE/AA.

INSTITUTIONAL MEDICINE

Part-time physician needed for *sexually transmitted clinic* at the New Haven Health Department, One State Street. Send resume to Health Director, New Haven Health Department, One State St., New Haven, CT 06511.

INTERNAL MEDICINE

Internal Medicine group looking for associate to join our practice located in New Haven area. Please send C.V. to Dr. William Schreiber, 2416 Whitney Ave., Hamden, CT 06518.

Board Certified Internal Medicine or subspecialty for busy coastal Internal Medicine group. Forward C.V. to William A. Colom, M.D., 447 Montauk Ave., New London, CT 06320.

The Northeast Permanente Medical Group in the greater Hartford area of Connecticut is seeking B/C or B/E Primary Care Internists for 1987. The Medical Group is the exclusive provider of health care services for the Kaiser Foundation Health Plan of CT. This opportunity offers membership in a 20 physician, multispecialty professional corporation; competitive salary and benefit programs; medical offices throughout the greater Hartford area and much more. University-hospital training or its equivalent is desirable. Address inquiries and resumes to: Alan Greenglass, M.D., Chief, Department of Internal Medicine, c/o Physician Placement Dept., Northeast Permanente Medical Group, P.C., Suite 401, 60 Washington St., Hartford, CT 06106.

General internist needed to join newly formed internal medicine group practice in semi-rural northeast Connecticut with a service area of 60,000. Ideal environment for raising a family yet within an hour of three university medical centers. Initial salary with progression to full partnership. Send CV and particulars to CSMS, c/o IM/MC.

The Equitable Life Assurance Society is seeking a BC/BE Cardiologist and/or Internist for part time work in insurance medicine. The job involves risk assessment of insurance applicants, EKG and stress test interpretation, consultations with underwriters, etc. Previous experience in insurance medicine is desirable but not absolutely necessary. We will train as required. Applicants primary work schedules should be flexible enough to allow scheduling of work on an intermittent and irregular basis. We anticipate needing help approximately 60 days during the next year. Interested individuals should contact Dr. L.E. Daniels, Medical Director, at (203) 783-8379 before October 9, 1987. Equitable is located at 488 Wheelers Farms Road in Milford (Exit 55 off the Merritt Parkway).

INTERNAL MEDICINE/GERIATRICS

We are seeking a highly qualified, career-oriented individual to join our full-time staff of internists at a 650-resident nationally recognized geriatric center. We offer a challenging environment in which to practice. This includes acute as well as long-term care. Consultants in most specialties are also available on staff. There is a very reasonable working schedule. Salary is competitive and benefits are excellent, including annual paid educational leave plus vacation. Admitting privileges are available at a nearby medical center. We are located in central Connecticut. If interested, please send CV and three letters of reference to Dr. Erlinda Rauch, Medical Director, Masonic Home and Hospital, P.O. Box 70, Wallingford, CT 06492. EEO.

MISCELLANEOUS

Physician's office space available, to share with internist in downtown New Haven. Ideal location; reasonable rent. Near both Yale New Haven Hospital and The Hospital of St. Raphael. Free patient parking. Available immediately. Call 777-2189.

OBSTETRICS/GYNECOLOGY

Excellent opportunity for female/male, B/C, B/E, Obstetrician/Gynecologists. Well established progressive practice needs a new partner to replace retiring physician. We do in office ultrasounds, colposcopy and fetal monitoring. Located across from hospital. Send CV to Tim Sharpe, M.D., 284 Broad St., Milford, CT 06460.

OTOLARYNGOLOGY

Seeking well-qualified otolaryngologist for long-established modern office in large Central Connecticut city. Fully-equipped office including head X-Ray, soundproof hearing booth, microscope and allergy setup. Large patient files. Write Lewis Chester, M.D., Beechtree Lane, West Hartford, CT 06107. (203) 561-1783.

PEDIATRICS

Our 102-bed community hospital is seeking a BE/BC U.S. trained pediatrician (male/female) to establish practice within our community. Hospital offers an attractive incentive program and excellent facilities. Position offers professional coverage provided by three existing independent pediatricians as well as additional physician specialties. Community of 50,000 located near major metropolitan area. Please forward letter of introduction and CV to: Robert C. Boardman, Executive Director, Rockville General Hospital, 31 Union St., Rockville, CT 06066. (203) 872-0501.

An opening for a part time associate, for up to 20 hours a week, is available now in a two person private pediatric practice. Office is located five miles from the Yale-New Haven Medical Center, our chief hospital affiliation. Earnings will be 50% of gross income. If interested call (203) 248-4846 any evening after 7 p.m.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

GENERAL SURGERY

July '88. Age 27. Nat'l bds. AB elig. MD, Int. and Res., University of Oklahoma, Tulsa Medical College. Prefers group or associate type practice. Write, Doron H. Finn, M.D., 2825 S104 East Ave., Tulsa, OK 74129.

INTERNAL MEDICINE

Oct. '87. Age 40. Presently in practice. Nat'l bds. AB cert. MD, Tufts Medical School, Boston, MA; Int. and Res., The Hospital of St. Raphael, New Haven. Prefers group or associate type practice. Write, Michael Collins, M.D., 8259 Toll House Rd., Annandale, VA 22003.

July '87. Licensed in Connecticut. Age 66. Nat'l bds. AB cert. MD, Georgetown University School of Medicine; Int. and Res., Boston City Hospital; Fellowship, Peter Bent Brigham (cardiology). Prefers institutional or insurance consulting type practice. Write CSMS, c/o ML/IM.

July '88. Age 30. Nat'l bds. MD, University of Massachusetts Medical School Worcester; Int. and Res., Medical College of Wisconsin, Milwaukee. Prefers group or associate type practice in a small to medium-sized community. Write, Thomas A. Browning, M.D., 2343 N. 81st St., Wauwatosa, WI 53213.

Gastroenterology. July '88. Nat'l bds. AB cert. MD, New York Medical College; Int. and Res., St. Vincent's Hospital, New York, NY; Fellowship, Albany Medical Center, Albany, NY. Prefers group, associate or institutional type practice. Write, Douglas T. Miller, M.D., 5 York Rd., Glenmont, NY 12077.

Nephrology. July '88. Age 30. Nat'l bds. AB cert. MD, Chicago Medical School, Chicago; Int. and Res., Long Island Jewish Hospital, New York; Fellowship, Mount Sinai Hospital, New York. Prefers group or associate type practice in a medium to large-sized community. Write, Glenn A. Dubov, M.D., 75-36 Blvd., Apt. 2A, Bayside, NY 11364.

Rheumatology. Aug. '88. Age 31. Nat'l bds. AB cert. MD, S.U.N.Y., Upstate Medical Center, NY; Int., Res., and Fellowship, George Washington University Hospital, Washington, DC. Prefers solo, group or associate type practice in a medium to large-sized community. Write, Joseph P. Laukaitis, M.D., 1600 S. Eads St., #638-N, Arlington, VA 22202.

ORTHOPEDIC SURGERY

Aug. '88. Age 38. Licensed in Connecticut. FLEX. AB elig. MD, University d'Etal de'Haiti; Int. (Haiti); Res., Howard University Hospital, Washington DC. Prefers group, associate or institutional type practice. Write, Maxime Coles, M.D., 10533 Pennydog La., Silver Spring, MD 20902.

PEDIATRICS

Allergy and Immunology. July '88. Flex. AB elig. MD and Int., Ain Shams University Hospitals, Cairo, Egypt; Res., Rush Medical College, Chicago, IL; Fellowship, University of Texas Health Science Center, San Antonio, TX. Prefers group or associate type practice. Write, Medhat M. Ragab, M.D., 5903 Danny Kaye, Apt. 908, San Antonio, TX 78240.

THORACIC SURGERY

July '88. Age 33. Nat'l bds. AB elig. MD, Georgetown University, Washington; Int. and Res., Geisinger Medical Center, Danville, PA; Fellowship, Ohio State University, Columbus, OH. Prefers solo, group or associate type practice in a medium to large-sized community. Write, Michael D. Harostock, M.D., 2337 Gavinley Way, Columbus, OH 43220.

UROLOGY

July '88. Age 32. Nat'l bds. MD, Cornell University, New York; Int., New York University Medical Center, New York; Res., Cleveland Clinic Foundation, Cleveland, OH. Prefers group or associate type practice in a medium to large-sized community. Write, Michael Ziegelbaum, M.D., 2396 Saybrook Rd., University Heights, OH 44118.

PAID CLASSIFIED ADVERTISING

BETHANY, CT NEEDS DOCTORS! Open a new Emergency Care Center Medical Office as soon as possible. Only 12 miles to Yale-New Haven; St. Raphael's; 10 miles to Waterbury Hospital. A new building is going up now in an established area. Lease with option to purchase. Contact: Gary Merritt, KATZ REALTY, INC., 1-800-843-3097.

CYBEX II with UBXT (computerized) purchased one year ago for partnership now terminated. Used only four times for diagnostic procedures. Purchase price $32,000. For sale: $22,000 plus transportation. Write G. Wilson, P.O. Box 9583, New Haven, CT 06535.

Connecticut Medicine

Vol. 51, No. 10 *The Journal of the Connecticut State Medical Society* October 1987
160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587

CSMS OFFICERS

James P. Orphanos, M.D. Greenwich
President
Norman A. Zlotsky, M.D., Rockville
President-Elect
Roger S. Beck, M.D., Wethersfield
Vice-President
Annemarie S. Welch, M.D., New Britain
Secretary
Robert R. McDonnell, M.D., New Haven
Treasurer
Lawrence B. Ahrens, M.D., Newington
Speaker of the House of Delegates
Mehdi S. Eslami, M.D., Waterbury
Vice-Speaker of the House of Delegates

AMA DELEGATES

Edward A. Kamens, M.D., Fairfield
  Joseph C. Czarsty, M.D., Oakville, *Alternate*
Guy W. Van Syckle, M.D., Danbury,
Chairman of the Council
  William A. Whalen, Jr., M.D., Willimantic, *Alternate*
Frank K. Abbot, M.D., Hartford
  Jerome K. Freedman, M.D., New Haven, *Alternate*
Stewart J. Petrie, M.D., Derby
  Joseph S. Sadowski, M.D., Hartford, *Alternate*

COUNCILORS

Robert P. Ragusa, M.D., Stratford
Fairfield County
Howard J. Wetstone, M.D., Hartford
Hartford County
George H. Rubin, M.D., Torrington
Litchfield County
Richard T. Sweet, M.D., Middletown
Middlesex County
Geroge A. Bonner, M.D., Guilford
New Haven County
Jerome Bobruff, M.D., New London
New London County
Gerald L. Schwartz, M.D., Rockville
Tolland County
Kenneth R. Dardick, M.D., Storrs
Windham County

ASSOCIATE COUNCILORS

Turpin H. Rose, M.D., Danbury
Fairfield County
John J. Sullivan, Jr., M.D., Stamford
Fairfield County
John J. O'Brien, M.D., Hartford
Hartford County
Robert M. Chmieleski, Bristol
Hartford County
W. Peter Reyelt, Jr., M.D., Sharon
Litchfield County
Kenneth Robbins, M.D., Middletown
Middlesex County
Theodore Zanker, M.D., New Haven
New Haven County
Marvin Fox, M.D., Milford
New Haven County
Sultan Ahamed, M.D., Norwich
New London County
Arturo D.P. Villa, M.D., Somers
Tolland County
Stephen M. Upham, M.D., Danielson
Windham County

COUNCILOR AT LARGE

Joseph C. Czarsty, M.D., Oakville

Editor	Robert U. Massey, M.D.
Literary Editor	Sherwin B. Nuland, M.D.
Editor Emeritus	J. Alfred Fabro, M.D.
Assistant to the Editor	Vivian C. Feriola
Staff Assistant	Valerie A. Redman

Editorial Board

Pediatrics	Michael D. Bailie, M.D.
Family Practice	Dewees H. Brown, M.D.
Cardiology and Internal Medicine	Martin Duke, M.D.
Psychiatry	Stephen Fleck, M.D.
Dermatology	Robert D. Greenberg, M.D.
Nephrology and Internal Medicine	William A. Handelman, M.D.
Infectious Diseases and Internal Medicine	David P. Johnson, M.D.
General Surgery	Kirk K. Kazarian, M.D.
Pathology and Hemotology	Ramon N. Kranwinkel, M.D.
Pathology	John L. Meyer, M.D.
Diagnostic Radiology	M.B. Ozonoff, M.D.
Obstetrics and Gynecology	Stewart J. Petrie, M.D.
Neurosurgery ·	Melville P. Roberts, M.D.
Cardiology	Michael A. Rossi, M.D.
Internal Medicine and Rheumatology	Robert T. Schoen, M.D.

CSMS Staff

Executive Director	Timothy B. Norbeck
Associate Executive Director	Josephine P. Lindquist
Director of Scientific Activities	Robert J. Brunell
Director of Public Affairs	Raymond T. Sullivan
Director of Government Relations	Cameron C. Staples
Coordinator Medical Courtesy Card	Margaret K. Connelly
Membership Department	Dorothy M. Stratton
Placement Service	Valerie A. Redman
Management Information Systems	Deborah P. Maynes
Accountant	Marc A. Sullivan
Secretary	Patricia Sullivan

Utility of Emergent Computed Tomograms of Head in Diagnosis and Patient Management

RIF S. EL-MALLAKH, M.D.

ABSTRACT–One hundred thirty-three consecutive emergency computed tomography scans of the head were evaluated. It was found that 47 (35%) yielded information that directly altered patients' management or ultimate disposition. Analysis of variables in the history and physical examination yielded no consistent criteria for predicting useful scans. However, complaints of vague symptoms that could not be confirmed on careful neurologic examination, particularly in young, mildly head-injured patients, was found to be a highly specific (but not sensitive) indicator of low utility scans. It is concluded that identification of this group with a history-examination mismatch may reduce the frequency of emergency scans by nearly 18%.

The increased availability of computed tomography (CT) has greatly improved and facilitated the diagnosis and management of intracranial disease. Head CT seems particularly suited for use in emergency situations since it is rapid, noninvasive, and accurate. Several studies have looked at the usefulness of CT in acute head injury.[1-3] Only one previous study has systematically evaluated high-yield criteria for emergent head CT scans.[4]

This retrospective chart review was undertaken to define better the patterns of emergency CT use; to search for high-yield or low-yield criteria; and to evaluate the impact of emergency CT on patient care and cost. It is hoped that such research can ultimately lead to an effective scheme of optimal use of limited resources.

Materials and Methods

Radiology department records of head CT scans were reviewed for 1984 and 1985. All scans were performed on the Elscint 2002 scanner. A total of 2773 were done of which 174 were done on patients from the emergency department. The records of 133 of these patients were available for retrospective analysis. Data regarding the history, presenting physical examination, hospital course, and ultimate outcome were collected and analyzed in light of the official radiologic report. A positive scan was defined as one that showed acute changes either independently or in comparison to a previous scan. Scans with chronic changes were defined as negative. A further distinction of "useful" negative scans and "useless" positive was made on the basis of retrospective analysis of actions taken as a direct consequence of the CT results. When a clinical decision, eg, to send a patient home or to anticoagulate, was made as a result of a negative scan, it was defined as a useful negative. When action was taken purely on the basis of the clinical course of the patient despite positive CT results, it was defined as a useless positive scan.

Results

At the University of Connecticut Health Center, 1,691 CT head scans were performed in 1984, and 1,082 were performed from January through September, 1985. Of these 94 and 80, in 1984 and 1985 respectively, were requested on an emergent basis through the emergency department. One hundred thirty-three records were available for study. There were 35 (28%) positive and 98 (72%) negative scans.

There were 64 males and 68 females; among the negative scan group the sexes were almost equally distributed, 51 males and 46 females. The patients ranged from two weeks to 94 years of age, with an average of 48.4 years. The average age in the group with positive scans was slightly higher (50.4 years ± S.D. 24.5) than the group with negative scans (47.7 years ± S.D. 27.17), but the difference was not significant. There was a bimodal distribution in age with peaks in the second and seventh decades of life. Presenting complaints and positive head scans in patients younger than 40 years of age were most often related to head trauma, whereas in patients over the age of 60 pathology was usually due to a primary vascular event (Table 1). Middle-aged individuals with acute symptoms often had neoplastic disease (Table 1).

Separation of scans into "positive" and "negative" as defined earlier is not entirely satisfactory as the ultimate value of a CT scan depends on its utility. Using a wide definition of "utility" all scans could be deemed useful. Positive scans define an acute intracranial process, and negative scans eliminate certain intracranial diseases. A more edifying approach would be to see how a patient's treatment might be altered by the information gained from a scan. Such an analysis yielded 16 "useful" negative scans

---

RIF S. EL-MALLAKH, M.D., Resident Physician; Departments of Neurology and Psychiatry, University of Connecticut School of Medicine, Farmington, CT 06032.

Table 1

THE TYPE OF PATHOLOGY IDENTIFIED ON CT WAS DUE TO HEAD TRAUMA IN YOUNGER PATIENTS. AND PRIMARY CEREBROVASCULAR EVENTS IN OLDER PATIENTS. MIDDLE AGED PATIENTS FREQUENTLY PRESENTED WITH NEOPLASMS.

Age Group (yrs)	*CT Finding*	*Normal*
≤40	Subdural hematoma, intracranial hemorrhage or skull fracture secondary to head trauma	7
	Arteriovenous malformations	2
	Metastatic disease	1
41-59	Subdural hematoma	2
	Primary CNS neoplasm (ependymoma and meningioma)	2
	Metastatic disease	1
≥60	Primary vascular events	11
	Subdural hematoma secondary to head trauma	1
	Total	27

and five “useless” positive scans (Table 2). The useful negative scans allowed 12 patients to be discharged from the emergency department and four to be given anticoagulant therapy. Useless positive scans were obtained in four patients with head trauma who were admitted and discharged based solely on their clinical condition; there was a false diagnosis in the remaining patient. The frequency of “useful” scans is significantly higher than the frequency of positive scans (Table 2).

Table 2

COMPARISON OF POSITIVE, NEGATIVE, “USEFUL” AND “USELESS” SCANS

	Positive CT Scans	*Negative CT Scans*	*Total*
“useful” scans	30	16	47
“useless” scans	5	82	86
Total	35	98	133

Predictive Variables

In an attempt to define a set of high-yield criteria, a detailed analysis of the patients’ presenting complaints and medical history, as well as the initial neurologic examination, was made. Historical aspects included previously known medical conditions such as atrial fibrillation, carcinoma, and seizures, and new symptoms such as headaches, confusion, nausea, vomiting, head trauma, weakness, gait disturbance, visual disturbance, dysphasia, confusion, unresponsive state, seizures, and rapidity of onset of symptoms. Variables examined in the initial examination included pulse, systolic and diastolic blood pressures, level of consciousness or confusion, weakness, dysphasia, involvement of cranial nerves, hyperreflexia, and plantar responses. None of these variables exhibited a consistent, significant difference between positive and negative scans or “useful” and “useless” scans.

The only predictive element was “history-examination mismatch.” Specifically, when symptoms of which patients complained could not be supported by careful neurologic examination, there seemed to be an excess of negative and “useless” scans. The most frequent mismatches involved complaints of confusion, difficulty concentrating, weakness, and slurring of speech which could not be documented by mental status, speech, and motor examinations. Of the 26 cases in which symptoms could not be confirmed by examination, 25 were negative. Four of these 25 were discharged from the emergency department, and the remaining 21 were discharged within 48 hours with diagnoses such as migraine and post-concussion syndrome.

An analysis of those services ordering useful positive and useful negative scans was done (Table 3), since many centers demand or suggest neurologic or neurosurgical consultation prior to obtaining an emergent CT scan. Neurosurgery and neurology were the services that most frequently obtained a scan which was either diagnostic or resulted in an immediate therapeutic intervention.

Table 3

THE FREQUENCY OF “USEFUL” POSITIVE “USEFUL” NEGATIVE, AND “USELESS” SCANS AS A FUNCTION OF THE SPECIALTY OF THE ORDERING PHYSICIAN

Service	*“Useful” Scans*	*“Useless” Scans*	*Percent “useful” scans*
Neurosurgery	6	9	40
Neurology	9	12	39
Emergency Department	9	19	32.14
General Medicine	4	12	25
General Surgery	1	5	16.6
Orthopedics	0	1	0
Unknown	13	38	25.5

Diagnoses

Positive scans frequently determined the diagnosis immediately (Table 4). These diagnoses generally involved blood and distortion of anatomy. When the scan was negative it was common to find that no pathology could be demonstrated to account for the presenting symptoms (Table 5). Bland vascular accidents were the most frequent cause of neurological deficits in patients with initially negative scans (Table 5).

Table 4

CT DIAGNOSIS IN 35 POSITIVE EMERGENT SCANS

CT Diagnosis	
Intraparenchymal or interventricular hemorrhage	15
Mass	5
Subdural hematoma	3
Subarachnoid hemorrhage	3
Infarct in evolution	3
Arteriovenous malformations	2
Epidural hematoma	1
Aqueductal stenosis with secondary hydrocephalus	1
Generalized cerebral edema	1
Depressed skull fracture	1
Total	35

Table 5

ULTIMATE DISCHARGE DIAGNOSIS IN 98 NEGATIVE EMERGENT HEAD SCANS.

Discharge Diagnosis	
No pathology	25
Cerebrovascular or transient ischemic event	20
Drug toxicity	9
Concussion	8
Migraine	7
Idiopathic seizures	6
Dementia	3
Aseptic meningitis	2
Vertigo	2
Metabolic encephalopathy	2
Sepsis	1
Syncope	1
Shunt malfunction	1
Psychosis	1
Depression	1
Undiagnosed	9
Total	98

Discussion

Emergent CT scans of the head are a relatively common procedure. They comprise greater than 6% of all CT head scans conducted at the University of Connecticut Hospital. Despite its frequent use in emergencies, CT performance in this setting has not been subjected to systematic, critical evaluation. On the other hand, emergent skull radiographs, which preceded CT, have been extensively evaluated.

Several studies have attempted to determine the usefulness of emergency skull roentgenograms in head injury,[5,6] and many studies suggest high-yield clinical criteria to increase the likelihood of a positive skull film.[7,8] However, further investigation has determined that, despite the proper use of these criteria, emergency skull roentgenograms do not alter patients' ultimate disposition and are not cost effective,[9] ie, the criteria increase the probability of positive skull roentgenograms but do not increase their utility.

Since the introduction of CT, several studies have affirmed its value in the management of head trauma[1,2] and facial fractures.[3] Only one study searched prospectively for high-yield criteria for urgent cranial CT scans.[4] Among 407 patients Mills et al found that those scans for coma, trauma, seizures, hemiparesis, and headache altered patient management 21-48% of the time. When patients presenting with altered mental status or reasons other than those already listed were scanned, the rate of altered management was fairly low at 7-8%.[4]

Our study was undertaken: 1) to search for high yield clinical criteria which may be useful in predicting positive CT findings; 2) to study the pattern of emergency department use of CT; and 3) to define better the population that presents with complaints or signs that may indicate acute intracranial process.

The concept of "useless" positives and "useful" negatives is akin to false positives and false negatives (Table 2) and makes a study of CT performance very difficult. Unlike skull roentenograms, a negative CT scan may be equally as useful as a positive scan. However, since it is very difficult to evalute the usefulness of scans in a retrospective study, strict definitions had to be adopted. In this study, if specific action was taken or avoided as a direct result of the CT results, the scan was defined as "useful." If no specific action was taken, or if clincial decisions were made *despite* CT result the scan was defined as "useless." This classification leads to a more productive way of evaluating the performance of CT.

In this study population there appeared to be two distinct age groups. Patients under 40 most frequently presented with head trauma, with or without altered consciousness. CT diagnosis in this group was predominantly related to vascular injury (Table 1). This group also contains all the "useless" positive scans and most of the "useful" negatives. Patients over 60 years of age most frequently presented with the acute onset of focal neurological deficits, and CT diagnosis was related to primary vascular events (Table 1). Middle aged individuals (41-59) were rare, and showed a mixture of disease (Table 1). These findings are consistent with the types of diseases present in the population at large.[2,10]

An ultimate diagnosis in a large population (25.5%) of negative emergent CT head scans is never found (Table 5). In most of these instances the patient is discharged with full resolution of his presenting symptoms and signs, and not infrequently he is younger than 40 years of age. On the other hand patients over 60 years of age with an initially negative emergent CT head scan are often diagnosed as having a primary cerebrovascular event (Table 5).

In this retrospective evaluation the search for high yield clinical criteria was disappointing. Several historical and examination criteria were analyzed. There was no consistent historical factor or physical finding that was significantly related to a positive or a useful scan. However, in 20 of 86 "useless" scans (and in 25 of 98 negative scans), there appeared to be a discrepancy between symptoms and documentable deficits on examination. This phenomenon, labeled "history-examination mismatch," appears to be highly specific (90%) but not sensitive (25%) in determining a "useless" CT examination. A mismatch was established when specific neurological complaints could not be documented by careful examination. Most frequent types of mismatches were complaints of diminished cognitive ability, weakness, and speech difficulties that could not be documented by mental status examination or general neurological examination. Typically the complaints were vague, often associated with headache, and were frequently preceded by mild head trauma. The complaints usually cleared quickly following hospital admission, or persisted unabated despite therapy. These patients were typically young adults. Identification of this group, although admittedly very difficult, could potentially reduce the number of emergent scans by nearly 18%.

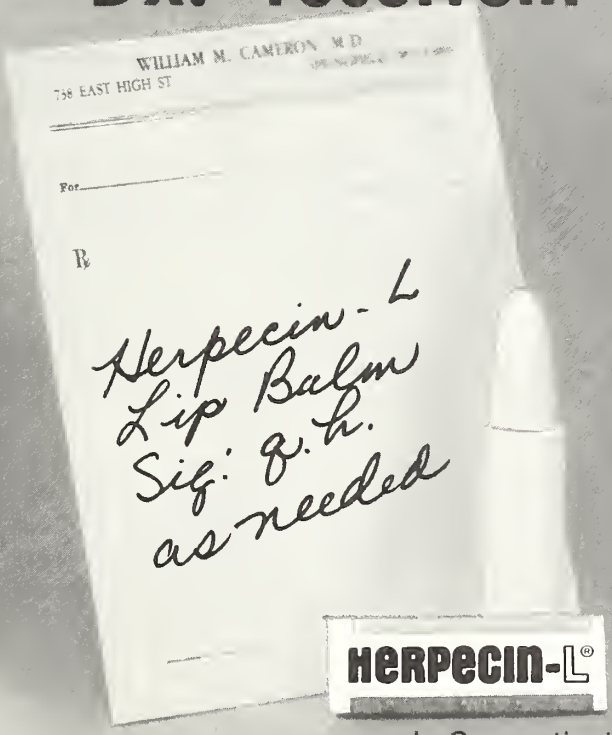
The specialty of the ordering physician was of moderate predictive value in determining a "useful" scan. However, evaluation of these data must be done very carefully. The data are incomplete since there is a very large number of "useful" scans in which the specialty of the ordering physician is unknown. Also neurologists or neurosurgeons are summoned by the emergency department physician only after an impression of a specific neurologic or neurosurgical problem has been reached.

Acknowledgement: I would like to thank Richard M. Ratzan, M.D., Departments of Medicine and Surgery, University of Connecticut School of Medicine, Farmington, for his helpful comments and suggestions.

REFERENCES

1. Bruce DA, Schut L: The value of CAT scanning following pediatric head injury. Clin Pediatr 1980, 19:719-725.
2. Jeffreys RV, Lozada L: The use of the CAT scanner in the management of patients with head injury transferred to the regional neurosurgical unit. Injury 1982, 13:370-374.
3. Neumann PR, Zilkha A: Use of the CAT scan for diagnosis in the complicated facial fracture patient. Plast Reconstr Surg 1982, 70:683-693.
4. Mills ML, Russo LS, Vines FS, et al: High-yield criteria for urgent cranial computed tomography scans. Ann Emerg Med 1986, 15:1167-1172.
5. Royal College of Radiologists: A study of the utilisation of skull radiography in 9 accident-and-emergency units in the UK. Lancet 1980, 2:1234-1237.
6. Galbraith S, Smith J: Acute traumatic intracranial haematoma without skull fracture. Lancet 1976, 1:501-503.
7. Bell RS, Loop JW: The utility and futility of radiographic skull examination for trauma. N Engl J Med 1971, 284:236-239.
8. Phillips LA: Comparative evaluation of the effect of a high yield criteria list upon skull radiography. J Am Coll Emg Phy 1979, 8:106-109.
9. Cooper PR, Ho V: Role of emergency skull x-rays films in the evaluation of the head-injured patient: a retrospective study. Neurosurg 1983, 13:136-140.
10. Aring CD, Merritt HH: Differential diagnosis between cerebral hemorrhage and cerebral thrombosis: clinical and pathological study of 245 cases. Arch Intern Med 1935, 56:435-456.

Dx: recurrent herpes labialis



"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough.**" DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits.**" MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) **. . . response** was **dramatic. HERPECIN-L . .** proven **far superior.**" DDS, PA

"All patients claimed **shorter duration . . .** at **prodromal symptoms . . .** HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

Immediate and Long-Term Results of Vertical Banded Gastroplasty for Morbid Obesity

JOHN B. HOLT, M.D., CHARLES L. CASTIGLIONE, M.D.
AND PHILLIP E. TROWBRIDGE, M.D.

ABSTRACT–The condition of morbid obesity is associated with significant morbidity and a six-to twelvefold increase in mortality. Permanent weight reduction is rarely achieved by non-surgical means in this group of patients. The gastric restrictive operation (vertical banded gastroplasty-VBG) has become the most frequently performed surgical procedure for the treatment of morbid obesity.

Fifty VBG operations were performed by the senior author between 1981 and 1985. There was no mortality and minimal morbidity. Detailed two to five year follow-up is available on 80% of the patients. Mean excess weight loss at three years was 56% for males and 61% for females (105 pounds mean loss for males, 104 pounds for females). Medical conditions related to the morbid obesity were improved in 72% of the patients. Seventy-nine percent reported improved self-esteem, and 71% indicated that the operation fulfilled their expectations. Patients who are willing to undergo behavior modification with regard to their eating habits and who will continue with moderate regular exercise can, in conjunction with the VBG operation, achieve good to excelent weight reduction and can ameliorate their risk of premature death and complications associated with morbid obesity.

Introduction

Morbid obesity is generally defined as being 100% or 100 pounds overweight. The risks of obesity have been well-established by the 30-year study of the population of Framingham, Massachusetts.[1] The adverse impact of overweight on the longevity of Framingham men is enormous. Analysis of those data demonstrates that being overweight is associated with dramatically higher mortality rates, especially in non-smokers. There is no indication in the Framingham data that there is a "safe" level of overweight. Edward Lew[2] reported a population survey of 750,000 persons between the years 1959 and 1972 which showed that for both men and women judged to be healthy, but with a weight of 140% of average or greater, there was a mortality rate 187% greater than the average for normal weight people. When examined in relationship to age, the mortality rate was over 200% of average for ages 40 to 59, and 185% for ages 60 to 69. Most studies on the risks of obesity do not address the risk of being 200% of ideal body weight or greater. Drenick,[3] however, reviewed such a population and observed a twelvefold increase in mortality for males 25 to 34 years old, decreasing to a sixfold increase for ages 35 to 44.

It would be ideal if optimal weight could be achieved through nutritional education, behavior modification, and exercise. Unfortunately, this is rarely achieveable on a long term basis for the morbidly obese patient. Johnson and Drenick[4] reported a series of 207 morbidly obese patients who had been hospitalized for weight reduction for periods of two months or more. One-half of the patients lost a mean of 62 pounds, while another 25% lost an average of 91 pounds. Thirty-eight percent reduced to within 30% of their ideal body weight. Yet, two to three years afterward, one-half of these patients had returned to their original level of obesity, and only seven (3%) remained at their reduced level. Drenick concluded: "For the truly morbidly obese, ie, those 100 pounds above their ideal weight for age, sex, height, and body frame, there is no non-surgical means that has been demonstrated to effect significant weight loss and maintain it."

An intra-gastric balloon, the Garren-Edwards gastric bubble, has been developed for the treatment of obesity. No long term controlled clinical trials have been reported, however, a recent issue of *The Medical Letter*[5] reviewed 106 patients weighing 100 to 300 pounds more than their ideal body weight. Twenty-three of 106 patients withdrew from the study. Forty-one patients treated continuously for six months lost an average of 40 pounds. Four of the 106 patients treated continuously for ten months lost an average of 76.5 pounds. Twenty-one patients were followed for two to 12 months after the balloon was removed: four patients lost another three to six pounds, 13 patients gained one to 14 pounds, and four gained 20 to 38 pounds. The editors concluded: "The effectiveness of a gastric balloon in promoting weight loss has not be adequately demonstrated."

JOHN B. HOLT, M.D., Chief Resident, Department of Surgery, Hartford Hospital/University of Connecticut Health Center, Farmington. CHARLES L. CASTIGLIONE, M.D., Fellow in Plastic Surgery, University of Pennsylvania Hospital, Philadelphia, PA. PHILLIP E. TROWBRIDGE, M.D., Senior Surgical Staff, Department of Surgery, Hartford Hospital, Hartford CT; Assistant Clinical Professor in Surgery, University of Connecticut School of Medicine, Farmington, CT.

Reprint requests: Suite 415, 85 Seymour St., Hartford, CT 06106 (Dr. Trowbridge).

With the present state of knowledge regarding the genetics, psychology, and physiology of morbid obesity, surgery appears to be the only long-term treatment to prevent or minimize the premature mortality and morbidity of this condition. To recommend surgery to these patients, the operation proposed must be safe and effective.

Patient Population

Between July 1981 and July 1985, 50 consecutive vertical banded gastroplasty (VBG) operations of the Mason type were performed by the senior author at Hartford Hospital. Patients ranged in age from 12 to 54 years. There were 12 males and 38 females. Mean patient weight was 288 pounds, with a range of 163 to 475 pounds. All patients but one were at least 100 pounds overweight, had failed multiple medical regimens to lose weight, and had been morbidly obese for at least five years. Many patients were referred because of medical complications of their obesity, including: hypertension in 48%, diabetes mellitus in 16%, pulmonary problems with sleep apnea or pulmonary insufficiency in 26%, and degenerative joint disease in 32%. Preoperative work-up included: routine hemogram and chemistries including serum cholesterol and triglycerides, ultrasound of the gallbladder, upper GI series, chest x-ray, pulmonary function testing with arterial blood gases, and EKG with stress test when indicated.

Operative Technique

All patients underwent the vertical banded gastroplasty operation as described by Mason[6] (Figure 1). A gastric window 7 to 8cm below the angle of His was created using the 31mm EEA stapler placed against an Edlich gastric tube positioned along the lesser curvature of the stomach.

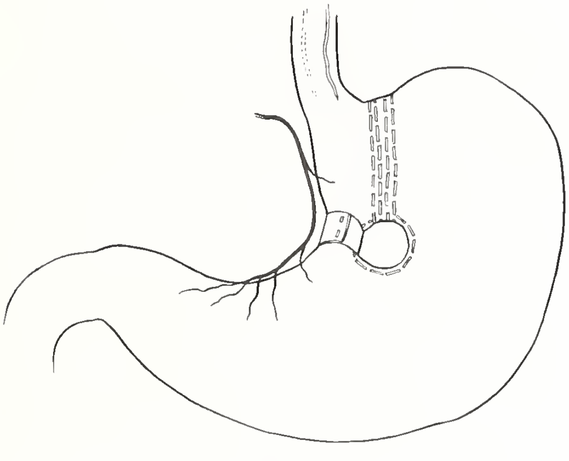


Figure 1

The lesser curvature gastric pouch measuring 30 to 45cc in volume was then created by placing four parallel rows of 4.8mm staples using the TA-90 stapling instrument. The volume of each pouch was determined by having the anesthesiologist gravity-drip Betadine-colored saline down the Edlich tube, thus accurately sizing the pouch and assuring that there were no staple or other technically created esophageal or gastric leaks. The pouch outflow tract was then permanently sized to a circumference of 5 to 5.5cm by wrapping Marlex mesh around the end of the pouch between the EEA window and the lesser curvature of the stomach. The incision was closed utilizing a single layer Polydioxanone suture to the fascia. Skin approximation was achieved with staples. Cholelithiasis existed in eight patients and concommitant cholecystectomy was performed on those patients.

Results

Postoperative hospital stay ranged from six to 11 days, with a mean of seven days. As noted from Table 1, which lists complications and subsequent operations, there were no deaths, no cases of clinical thromboembolism, and no wound infections. Two patients developed intra-operative bleeding from iatrogenic spleen trauma. In one patient, hemostasis was achieved with splenorrhaphy, but in the other, splenectomy was required after splenic salvage attempts were unsuccessful. Three patients developed wound seromas not requiring additional surgery. Subsequent operations were performed in three patients because of the development of cholelithiasis, an incidence of 6%. Functional panniculectomy, incisional herniorrhaphy, Marlex mesh erosion requiring removal, and pouch takedown because of patient intolerance were the indications for subsequent surgery in eight patients. No patients in this series underwent revisional surgery to achieve additional weight loss.

Table 1

POSTOPERATIVE COMPLICATIONS AND SUBSEQUENT OPERATIONS FOLLOWING VBG

Early	
Mortality	0
Splenectomy	1
DVT or Pulmonary Emboli	0
Wound Infection	0
Seroma	3
Late	
Incisional Hernia	1
Staple Line Disruption	2
Marlex Erosion Into Stomach	2
Subsequent Operations	
Cholecystectomy	3
Panniculectomy	4
Incisional Herniorrhaphy	1
Revision	
Removal Marlex Mesh	2
Intolerance	1

The accompanying graphs (Figures 2 and 3) demonstrate the mean weight loss and percentage of excess weight loss achieved. Male patients weighed a mean of 338 pounds at the time of surgery and, at two years, had a mean weight of 233 pounds. At three years, the mean patient weight was 236 pounds, representing a 56% loss of excess weight. The 38 female patients had a mean weight of 269 pounds preoperatively, and at three years, had lost 61% of their excess weight over ideal weight, to a mean of 165 pounds. The superobese group who were at least 225% of their ideal body weight at the time of surgery lost 68% of their overweightness.

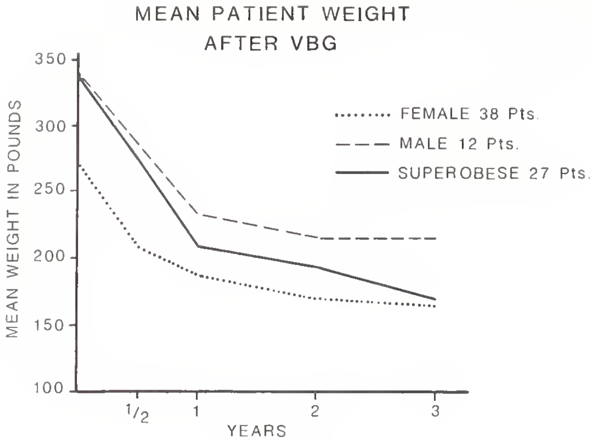


Figure 2

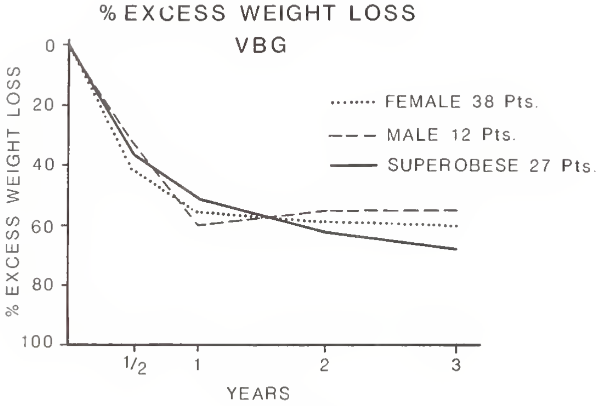


Figure 3

Long term follow-up has been achieved by office visit and/or questionnaire in 80% of patients (Table 2). Coexisting obesity-related medical complications prompting referral have been improved in 72% of patients with medication eliminated in 52%, and dosage reduced in the remainder.

Table 2
POSTOPERATIVE QUESTIONNAIRE RESULTS

Coexisting Medical Conditions	
Improved	72%
Medication Eliminated	52%
Dosage Reduced	26%
Vomiting	
None	10%
Rarely or Occasionally	17%
Regularly	
1 x/Week	35%
1-3 x/Week	31%
3 x/Week	7%
Foods Difficult To Eat	
None	10%
Beef, Red Meat	87%
Shellfish	10%
Salad	36%
Fish	13%
Other	18%

Ninety percent of our patients reported vomiting as a recurrent symptom as a result of the operation. Fortunately, only 7% of our patients reported vomiting three times a week or more. Red meat is difficult for most patients who have had the VBG operation because of the permanently narrow outflow tract from the gastric pouch. This may improve somewhat with time as patients learn to be very selective in their choice of meats. Fish and poultry are usually well-tolerated. We do emphasize the importance of alternate dietary protein sources and insist that patients continue to take supplemental iron and vitamins indefinitely postoperatively. Other foods difficult to eat are listed and vary from patient to patient, but are somewhat predictable: salad, especially lettuce and raw vegetables with fibrous skin or seeds.

Table 3 records their lifestyle changes as perceived by the patient. These will be considered more fully in the discussion section of this paper, but it is comforting to note that 70% to 80% of the patients felt that the operation had fulfilled their expectations, and they were pleased to have had the surgery.

Table 3
LIFESTYLE CHANGES SINCE SURGERY

Exercise	
None	33%
Walking	36%
Aerobics	15%
Bicycle	13%
Swimming	10%
Self Image	
Improved	79%
Social Life, Marital Situation	
Improved	54%
Job Change or Improvement	
15/28	54%
Did Operation Fulfill Expectations?	
Yes	71%
Would You Go Through Operation Again?	
Yes	79%

Discussion

The definition of morbid obesity seems to be generally accepted as the condition of being 100 pounds or 100% over ideal body weight. In considering surgery for this condition, there remains some controversy as to whether this degree of obesity needs to have been present for a specified minimum period of time, ie, five years. Also, some feel that complications of obesity need to exist, ie, hypertension, diabetes mellitus, premature vascular disease, etc. before surgery is considered. Finally, many believe that all non-surgical means of therapy need to have been tried and failed even though Johnson and Drenick[4] and others have convincingly shown that this will amost invariably be the case. With the well-documented increased morbidity and mortality of morbid obesity such restrictions seem inappropriate.

The operation of vertical banded gastroplasty produces early satiety which is absent in non-surgical treatments of morbid obesity. In addition, there is a very definite negative reinforcing biofeedback after this gastric restrictive operation. If patients overeat, or do not chew their food adequately, the esophagus begins to fill with food and distend first producing very unpleasant lower substernal chest distress or pain and later vomiting. The intra-gastric balloon, the Garren-Edwards gastric bubble, has been approved by the Food and Drug Administration for the treatment of obesity. The results of long-term clinical trials will be important in determining whether long-term weight loss can be safely achieved and, more importantly, maintained with this device.

In order to achieve success with gastric restrictive operations, it has been clearly demonstrated by Mason[6] that the gastric pouch must be measured at the time of surgery and be restricted to a volume of 17 to 30cc. In addition, the partition between the pouch and the remainder of the stomach must be secure. Finally, the outflow tract must be non-dilatable, measuring a circumference of 4.5 to 5.5cm.

As mentioned in my introduction, to recommend surgery to these high risk patients, the operation must be safe and effective. Our experience with the VBG operation since 1981 has been satisfying with regard to mortality and morbidity. We continue to have no mortality in those patients whom we have selected for this operation, and this continues to be the case with our series now numbering over 70 patients. A complete pre-hospital medical assessment of these patients is essential and the risk-benefit ratio must be clearly in the patient's favor. Pulmonary function testing is performed in all patients. Patients with sleep apnea are evaluated by appropriate consultation and sleep studies to assess their degree of oxygen desaturation, carbon dioxide retention, and cardiac rhythm disturbances. Similarly, cardiac consultation is obtained as needed. No instances of deep venous thrombosis were identified and no clinical or angiographic pulmonary emboli occurred. All patients were given subcutaneous heparin on admission to the hospital and this was continued perioperatively and postoperatively until the patients were fully ambulatory. Sequential venous compression stockings were used in the operating room and through the first postoperative night. Transfusions were required in two patients, both of whom had bleeding from the spleen. One patient required incidental splenectomy and in the other case splenorrhaphy was successful. Wound complications were minimal with no wound infections. As noted, eight patients underwent cholecystectomy at the time of the VBG procedure because of cholelithiasis. Only three patients have developed clinical cholecystitis in our follow-up period, so I do not believe that routine cholecystectomy is indicated in all patients undergoing gastric restrictive surgery, although this has been advocated by some authors.[7] Two patients have had partial gastric staple-line disruption in the follow-up period. One patient has maintained satisfactory weight loss through behavior modification and dietary restriction; the other patient represents a weight loss failure but he has chosen not to have further surgery. Two patients have had erosion of the Marlex mesh into the stomach. These were patients done early in the series in whom the sutures fixing the Marlex to itself may have caught the stomach wall producing a possible suture fistula site. Both of these patients had considerable retching and vomiting following food indiscretions which may have contributed to the erosion. Surgical removal of the mesh was accomplished in each case without taking down the pouch and both patients have continued nutritionally well at their reduced weight. Finally, one patient who became edentulous and could not adjust to dentures developed relatively intractable vomiting after eating because of her inability to chew foods. She chose to have the operation reversed and a simple stapled side to side anastomosis was created between the lesser curvature gastric pouch and the remainder of the stomach. She has regained some 20% of her lost weight, but her vomiting has been eliminated and she is satisifed.

Satisfactory weight loss which can be maintained over a long period of time is often the chief criterion in the determination of success for obesity surgery. Long term follow-up of two to five years is complete in 80% of our patients. Shamblin[8] has shown that gastric-stapling patients lost to follow-up have similar results to those patients in whom follow-up data is available. Mean weight loss achieved for these patients represented a loss of 41% of excess weight over ideal body weight at six months. At one year, the mean weight loss for all patients was 58% of their excess weight. At two years, the mean excess weight loss was 60% overall. The data for patients followed at least three years or longer have demonstrated maintenance at their reduced weight. In most VBG patient series, the very obese group of patients do not achieve comparable weight loss. Our patients who met this criterion of being at least 225% of their ideal body weight had a weight loss pattern similar to the entire group, which we believe is because the gastric pouches were purposely made with a 20cc volume and the outflow tract was wrapped at a 5.0cm circumference in this subset of patients. Most bariatric surgeons grade their results according to weight loss, and if patients have lost 75% of their excess weight, they are considered to have an excellent result. Results are determined to be good if weight loss is between 50 and 75% of excess; fair for 25 to 50%, and a failure if the patient loses less than 25% of his excess weight. By these standards, 10% of our patients would be classified as excellent, 50% as good, 38% fair, and only one patient failed to lose at least 25% of his excess weight.

More important than the absolute weight loss is the impact of surgery upon the lives of these patients. Seventy-two percent of our patients reported that the medical conditions co-existing preoperatively with their morbid obesity were improved. Fifty-two percent were able to discontinue completely their anti-hypertensive, diabetic, pulmonary, or arthritic medications, and 26% stated that their medication requirements had been reduced.

Many simple quality-of-life successes were reported by our patients: the ability to tie their shoes, cross their legs, purchase ready-made clothes, fit into theatre seats. As noted, 78% of our patients felt their social life had improved. Many patients described that their lives were "more like normal people," reporting new marriages, divorces, new healthy babies where they had previously been unable to become pregnant. Seventy-nine percent of our patients reported improvement in their self-image and self-esteem similar to the results reported by Stunkard et al[9] who concluded that "the emotional state of patients during weight loss following surgery was superior to that during attempts at weight reduction by other methods."

As part of our evaluation of patients to see if they are suitable candidates for the operation, and as part of the informed consent discussions, it is emphasized that the VBG operation is only a tool to help achieve weight loss and a healthier, more active life. The operation will produce early satiety after eating a small meal which is different from voluntary food restriction. If success is to be achieved, appropriate behavior modification on the patient's part is essential, and non-negotiable. They must learn to choose their foods wisely, emphasizing protein to provide essential amino acids to avoid breakdown of lean body mass. In addition, the four major food groups are included in their menu planning. Supplemental iron and vitamins are added. High calorie foods, especially in liquid or semi-liquid form such as regular carbonated sodas, selected fruit juices, and ice cream, must be avoided. Proper eating requires that food be cut into small bites and then chewed to a soft consistency. Liquids are not to be taken with meals as that would prematurely flush the gastric pouch, but are taken between meals starting one hour after the meal. Because of the constricted outflow tract from the gastric pouch and occasional incomplete chewing of food, most patients experience some vomiting, even years following the surgery. Although unpleasant, vomiting serves as a reminder to the patient of the eating behavior modification indefinitely required by the operation. Occasional vomiting by the patient is reassuring to the surgeon that the staple lines are still intact and that the outflow tract has not substantially dilated.

Adherence to an exercise program also seems to be essential to lower the body weight "set point" and thus achieve an excellent result. Daily brisk walking for 30 minutes is sufficient exercise for these patients and had best compliance. Exercise programs which require special equipment or additional financial expenditure are rarely continued. Finally, it is emphasized to all our patients that long-term health monitoring is important to insure that the conditions associated with obesity are avoided or controlled and that nutritional deficiencies do not develop. Patients who are willing to undergo the above behavior modification with regard to their eating habits and who will continue moderate, regular exercise can, in conjunction with the vertical banded gastroplasty operation, achieve good to excellent weight reduction and can ameliorate their risk of premature death and complications associated with morbid obesity.

REFERENCES

1. Kannel WB, Gordon T. Physiological and medical concomitants of obesity: the Framingham study, in Obesity in America: NIH Publication 79-359. Edited by Bray G. Washington, DC, US Department of Health, Education and Welfare, 1979.
2. Lew EA, Garkinkel L. Variations in mortality by weight among 750,000 men and women. J Chronic Dis 1979, 32:563-76.
3. Drenick EJ, Bale GS, Seltzer F, Johnson DG. Excessive mortality and causes of death in morbidly obese men. JAMA 1980, 243:443-5.
4. Johnson D, Drenick EJ. Therapeutic fasting in morbid obesity. Long term follow-up. Arch Intern Med 1977, 137:1381-2.
5. The Medical Letter August 15, 1986, 28:77-8.
6. Mason EE. Vertical banded gastroplasty for obesity. Arch Surg 1982, 117:701-6.
7. Amaral JF, Thompson WR. Gallbladder disease in the morbidly obese. Amer J Surg 1985, 149(4):551-7.
8. Shamblin JR. Where are the patients who are lost to folow-up? Presentation abstracts. American Society for Bariatric Surgery, June, 1986, 49-50.
9. Stunkard AJ, Stinnett JL, Smoller JW. Psychological and social aspects of the surgical treatment of obesity. Am J Psych 1986, 143:417-29.

Surgery for Thyroid Cancer: Recommendations Versus Reality

ROBERT A. KOZOL, M.D., AND PATRICIA J. NUMANN, M.D.

ABSTRACT–The appropriate surgical treatment for thyroid cancer remains controversial. To appreciate the practice preferences of general surgeons in Connecticut, we polled two hundred members of the Connecticut Society of American Board Surgeons. One hundred surgeons responded (50% response rate). The results reflect a considerable variation in the surgical approach to thyroid cancer. For a greater than 5 cm papillary carcinoma, 43% of surgeons performed subtotal thyroidectomy, 26% total thyroidectomy, and 28% lobectomy and isthmusectomy. For a greater than 2 cm follicular carcinoma, 45% performed total thyroidectomy, 32% subtotal thyroidectomy, and 23% lobectomy and isthmusectomy. While there is good support in the literature for total thyroidectomy and for lobectomy plus isthmusectomy (for some tumors), subtotal thyroidectomy is a questionable "compromise" procedure. An algorithm is offered for surgeons not comfortable with the technique of total thyroidectomy.

Introduction

Despite decades of data, the optimal operation for differentiated carcinoma of the thyroid gland remains controversial. The national experts have fallen into two schools, those that practice total or near-total thyroidectomy and those that support lobectomy plus isthmusectomy. This study was designed to determine the preferences of general surgeons who perform thyroid surgery in Connecticut.

Methods

Two hundred members of the Connecticut Society of American Board Surgeons were sent questionnaires concerning their practice of thyroid surgery. Exactly one hundred surveys were returned (50% response rate).

Results

The results indicate that a variety of operations are performed in the community for thyroid cancer. The responses for the specified tumors are seen in Table 1.

When asked if resection of a remaining lobe should be done if malignancy was diagnosed only on permanent pathology of the original specimen, 39 said *yes*, 40 said *no*, and 21 said that it depended on the specifics of the pathology.

Table 1

OPERATION PERFORMED FOR SPECIFIED TUMOR (100 respondents)

Lesion	*Lobectomy*	*Lobectomy + Isthmus*	*Subtotal Thyroidectomy*	*Total Thyroidectomy*
> 5 cm papillary carcinoma	3	28	43	26
> 2 cm follicular carcinoma	–	23	32	45

When questioned on granting privileges for thyroid surgery (more than one choice accepted), the response was as follows: all general surgeons, 70; general surgeons doing more than six thyroids per year, 29; all ear, nose, and throat surgeons, nine; ENT surgeons doing more than six thyroids per year, 23; endocrine surgeons only, none.

Discussion

The optimal operation for differentiated carcinoma of the thyroid gland remains controversial. This is due to the lack of any prospective controlled trials comparing various operations, the long delay before recurrence, the relatively favorable prognosis of thyroid cancer, and the higher complication rate of total thyroidectomy. The extent of resection performed is based on the understanding of various prognostic factors which have been established for differentiated thyroid cancers, including histologic cell type, size of the lesion, extra-thyroidal extension, age, and sex. It should be noted that one school of thought considers age as the most important prognostic factor.[1] Thus, Cady et al define a high-risk (poor prognosis) group as men over 40 and women over 60 years of age, and a low-risk (good prognosis) group as men under 40 and women under 60 years of age.[1]

Proponents of lesser resections (lobectomy plus isthmusectomy) can quote favorable survival statistics in their support. Crile states that, "Unless the patient has distant metastases or inoperable local disease, there appears to be no advantage to performing a total thyroidectomy" (for follicular carcinoma).[2] In a study of 576 patients with papillary carcinoma, there was no significant difference in mortality for cancer based on type of operation.[3] Furthermore, the complication rates have been shown to be lower with lesser resections in several series.[4,5]

Total thyroidectomy is supported by several facts. The survival curve for follicular carcinoma drops sharply if vascular invasion is seen.[6,7] This is due to the development of distant metastatic spread via the bloodstream. If total thyroidectomy is performed, total thyroid ablation can

---

ROBERT A. KOZOL, M.D., Assistant Professor of Surgery, University of Connecticut School of Medicine, Farmington, CT. PATRICIA J. NUMANN, M.D., Associate Professor of Surgery, SUNY Health Care Center at Syracuse, Syracuse, NY.

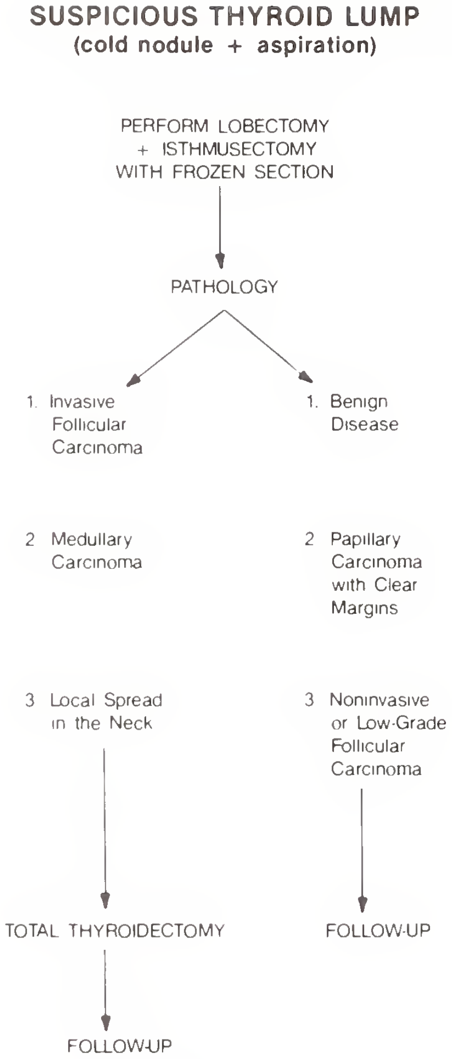

SUSPICIOUS THYROID LUMP
(cold nodule + aspiration)
PERFORM LOBECTOMY + ISTHMUSECTOMY WITH FROZEN SECTION
PATHOLOGY
1. Invasive Follicular Carcinoma
2 Medullary Carcinoma
3 Local Spread in the Neck
1. Benign Disease
2 Papillary Carcinoma with Clear Margins
3 Noninvasive or Low-Grade Follicular Carcinoma
TOTAL THYROIDECTOMY
FOLLOW-UP
FOLLOW-UP

Figure 1
Algorithim for the treatment of thyroid cancer.

be accomplished with a relatively low dose of ^{131}I, allowing the patient to be followed with yearly total body thyroid scans. Any metastasis could be treated with ^{131}I. With papillary carcinoma, the problem is that of multifocality. The argument for total thyroidectomy in papillary carcinoma > 1.5 cm in diameter is based on the belief that residual or recurrent tumor in the remaining gland after lesser resections is clinically significant.[8] It should be noted that total thyroidectomy can be accomplished with very low complication rates.[9,10] Total thyroidectomy also allows thyroglobulin-binding globulin levels to be followed.

The results of our survey indicate considerable ambiguity in the minds of practicing general surgeons who perform thyroid surgery. We assume that lesser resections are often performed because of the indolent nature of the disease and fears of recurrent laryngeal nerve damage or permanent hypoparathyroidism. Despite the lack of a national consensus in all cases, there are several situations where there is general agreement, as follows:

1. Follicular carcinoma with vascular invasion requires total thyroidectomy based on the arguments outlined above.

2. Thyroid carcinoma in a previously irradiated neck requires total thyroidectomy because of the high rates of multifocality and local recurrence.[11]

3. "Occult" papillary thyroid carcinoma (< 1.5 cm) can be treated by lobectomy plus isthmusectomy.[12]

Our survey shows that subtotal thyroidectomy is being commonly performed for thyroid cancer. This would seem to be a compromise operation between the lobectomy (plus isthmusectomy) school and the total thyroidectomy school. There are two major criticisms of such an approach. First, the subtotal thyroidectomy leaves considerable thyroid tissue in the neck, which may be impossible to ablate with ^{131}I. Second, some patients will require completion total thyroidectomy by reoperation, based on the permanent pathology. Completion total thyroidectomy is technically easier with a prior lobectomy compared to a prior subtotal thyroidectomy. Therefore, we offer an algorithm for the surgeon treating thyroid tumors (Figure 1). Surgeons who are unfamiliar or uncomfortable with the technique of total thyroidectomy may want to refer patients for completion total thyroidectomy after lobectomy in appropriate circumstances.

While we await future prognostic and survival data, it behooves us to train our residents to perform safe, total thyroidectomy when indicated so that they may be able to treat adequately the entire patient population that they will encounter.

REFERENCES

1. Cady B, Rossi R, Silverman M, Wool M: Further evidence of the validity of risk group definition in differentiated thyroid carcinoma. Surgery 1985, 98:1171-1178.
2. Crile G, Pontius K, Hawk W: Factors influencing the survival of patients with follicular carcinoma of the thyroid gland. Surg Gynecol Obstet 1985, 160:409-413.
3. Mazzaferri EL, Young RL: Papillary thyroid carcinoma: a 10-year follow-up report on the impact of therapy in 576 patients. Am J Med 1981, 70:511-518.
4. Starnes HF, Brooks DC, Pinkus GS, Brooks JR: Surgery for thyroid carcinoma. Cancer 1985, 55:1376-1381.
5. Farrar WB, Cooperman M, James A: Surgical management of papillary and follicular carcinoma of the thyroid. Ann Surg 1980. 192:701-704.
6. Edis AJ, Grant CS, Egdahl RH: Manual of Endocrine Surgery, 2nd Edition. New York: Springer-Verlag 1984, pp 325.
7. Cady B, Sedgwick C, Meissner W, Bookwalter J, Romagosa V, Werber J: Changing clinical, pathologic, therapeutic and survival patterns in differentiated thyroid carcinoma. Ann Surg 1976. 184:541-553.
8. Guillamondegui OM, Mikhail RA: The treatment of differentiated carcinoma of the thyroid gland. Arch Otolaryngol 1983, 109:743-745.
9. Attie JN: Diagnosis and management of thyroid cancer: a large personal experience. Infect Surg 1986, 5:435-446.
10. Clark OH: Total thyroidectomy: the treatment of choice for patients with thyroid cancer. Ann Surg 1982, 196:361-370.
11. Schneider AB, Favus MJ, Stachura ME, Arnold MJ, Frohman LA: Incidence, prevalence and characteristics of radiation-induced thyroid tumors. Am J Med 1978, 64:243-252.
12. Hubert JP Jr, Kiernan PV, Beahrs OH, McConahey WM, Woolner LB: Occult papillary carcinoma of the thyroid. Arch Surg 1980. 115:394-398.

Important Advances in Clinical Medicine

Psychiatry

The Scientific Board of the California Medical Association presents the following inventory of items of progress in psychiatry. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in psychiatry that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Psychiatry of the California Medical Association and the summaries were prepared under its direction.

Current Perspectives in Posttraumatic Stress Disorders

The term posttraumatic stress disorder was first officially used in 1982 and was associated with the problems of Vietnam veterans. The disorder appears in those who have suffered a significant traumatic event that is outside the usual human experience. These include serious threats to one's life or one's family or relatives or witnessing violence or death. The primary symptoms include nightmares or intrusive thoughts, numbing of responsiveness to the external world and a series of other symptoms that may involve avoidance behavior of the traumatic event, startle reaction, sleep disturbance, memory impairment and guilt about surviving. This disorder has now been studied in a number of survivors.

Following the May 1980 eruption of Mount St. Helens in southwestern Washington, a team of researchers studied the effects on persons involved. Of 548 who experienced the volcanic eruption, 99 had a psychiatric disorder related to the eruption. Most had a generalized anxiety disorder, but 11 people had a posttraumatic stress disorder. In contrast to this natural disaster, disasters caused by humans often result in a higher incidence of this latter disorder.

During the Pol Pot atrocities in Cambodia between 1975 and 1979, conditions like the holocaust in Nazi Germany occurred. Researchers found in Cambodians symptoms of the posttraumatic stress disorder similar to those suffered by Nazi victims. In some Cambodians the symptoms have lasted for more than ten years. In studying a community sample of Cambodian adolescents who had endured these atrocities, 20 of 40 students had the disorder. A majority also had persistent depressive symptoms. Recent work with children who have witnessed violence or have been victims of physical abuse or incest show a very high incidence of the disorder. In one study, 80 of 100 uninjured witnesses of violence to parents had posttraumatic stress disorder. Much of the reexperiencing takes the form of traumatic play and dreams. These children often appear numb, constricted and show subdued behavior.

There is increasing evidence that this disorder can be very persistent. In a 40-year follow-up of World War II American prisoners of war, of those who had the stress disorder immediately following the incarceration, 39% still reported mild symptoms, 24% had improved but with moderate residual symptoms and 8% had no recovery or had deteriorated. There are reports of the reactivation of the syndrome with a 30-year delay in veterans of World War II. It can have a prolonged recurrent course, and current stresses such as occur in aging can reactivate it.

People who have histories of being exposed to severe traumas, either as children or adults, should be considered at a high risk for suffering from a posttraumatic stress disorder that may have been asymptomatic for long periods of time.

J. David Kinzie, M.D.
Portland, Oregon

REFERENCES

Eth S, Pynoos RS (eds): *Post-Traumatic Stress Disorder in Children*. Washington, DC, American Psychiatric Press, 1985.

Reprinted from *The Western Journal of Medicine*, July 1987.

Kluznick JC, Speed N, VanValkenburg C, et al: Forty-years follow-up of United States prisoners of war. *Am J Psychiatry* Nov 1986;143:1443-1446.

Shore JH, (Ed): *Disaster Stress Studies: New Methods and Findings*. Washington, DC, American Psychiatric Press, 1986.

Group Therapy and Schizophrenia

Group therapy is a useful modality for treating patients with schizophrenia. In a recent review of 43 controlled-outcome studies, it was judged to be effective in 80% of the outpatient studies and 67% of the inpatient studies. In the inpatient setting, there was a tendency for long-term groups to be more beneficial than short-term groups, and significantly more interaction-oriented groups were judged effective than insight-oriented groups.

Homogeneous groups composed entirely of schizophrenic patients are more successful clinically than heterogeneous groups because the patients have common treatment goals, and specific techniques can be used that address mutual needs. Inpatient groups usually meet three to five times per week in sessions lasting 45 to 60 minutes. In the outpatient setting, weekly groups lasting 60 to 90 minutes are typical. In both settings, five to eight patients is the optimal number. Cotherapy teams are useful because it sometimes takes two therapists to cope with a group of disturbed patients. Therapists should be active, open, supportive and consistent, and they should strive to create a safe environment free of excessive anxiety and confrontation.

Several clinical studies have found that patients in these groups value discussion topics aimed at improving relationships with others and learning to cope with psychotic experiences. Less valuable have been topics centering on advice-giving and the expression of social amenities. Although personal problems may be discussed, topics dealing with sexual issues and anger between the members may increase anxiety and lead to regressive behaviors.

Schizophrenic therapy groups are cost-effective, they have been found to lower the rates of readmission to hospital and they are valued by patients, with attendance rates of more than 95% being reported. They are an important treatment modality when used in conjunction with antipsychotic medication and long-term follow-up.

Nick Kanas, M.D.
San Francisco

REFERENCES

Alden AR, Weddington WW Jr, Jacobson C, et al: Group aftercare for chronic schizophrenia. *J Clin Psychiatry* Jun 1979;40:6-12.

Donlon PT, Rada RT, Knight SW: A therapeutic aftercare setting for 'refractory' chronic schizophrenic patients. *Am J Psychiatry* Jun 1973;130:682-684.

Kanas N: Inpatient and outpatient group therapy for schizophrenic patients. *Am J Psychother* Jul 1985;39:431-439.

Kanas N: Group therapy with schizophrenics: A review of controlled studies. *Int J Group Psychother* Jul 1986;36:339-351.

Kanas N: Short-term group therapy for schizophrenic inpatients. *Psychiatr Ann* Dec 1986;16:695-698.

Update on Psychoneuroimmunology

The rapidly emerging interdisciplinary field of psychoneuroimmunology—also called neuroimmunomodulation, behavioral immunology or psychosocial neuroimmunology—is concerned with the complex bidirectional interactions between the central nervous system and the immune system and their clinical implications. Several acute and chronic naturally occurring stresses and depression have recently been shown to be immunosuppressive. The stress of medical school "examination week" activates latent herpes simplex virus infection to a greater degree in lonely students. Activation of the Epstein-Barr virus and lowered helper-suppressor T-cell ratios result from the chronic stress of providing family care to victims of Alzheimer's disease. Poor marital quality, a recent separation and divorce and consequent depression are associated with a reduction of several measures of immune function. Depressive illness requiring hospital admission (but not dysthymic disorders) is accompanied by immunosuppression as shown by reduced lymphocyte mitogenic responsiveness in vitro. Patients with endogenous depression associated with psychomotor agitation show a reduced sensitivity of lymphocyte β-adrenergic receptors. Depressed patients have a lower basal lymphocyte content of cytoplasmic glucocorticoid receptors than controls.

The close relationship between the central nervous system (CNS) and the immune system is emphasized by the findings of receptor sites for some psychotropic drugs on immunologically competent cells and by cell-surface similarities between neurons and lymphocytes. To illustrate, benzodiazepines stimulate monocyte chemotaxis, an effect likely mediated by the peripheral-type receptor. Thy-1 glycoproteins are major cell-surface constituents of thymocytes and neurons. French investigators have implicated lateral specificity in the cerebral cortex in neuroimmunoregulation, with possible cognitive versus affective influences on immunity. Left cortical lesions decrease T-cell numbers, responsiveness to mitogen and "natural killer" cell cytotoxicity. (Autoimmune and atopic diseases are more common in left-handed persons.)

Interest in the role of enkephalins and endorphins in mediating stress effects on immunity has increased considerably. Rats that receive intermittent foot shock stress, which produces opioid-dependent analgesia, show naloxone-reversible immunosuppression. Secretion of both adrenocorticotropic hormone (ACTH) and β-endorphin is controlled by corticotropin-releasing factor (CRF). In turn, the immune system secretes factors that influence CRF and opiocortin neurons. An anatomic substrate in the CNS exists for participation of the peptide systems in autonomic, immune and other physiologic homeostatic mechanisms, which tend to be disordered under conditions of stress, in disease and in aging. Met-enkephalin-like, morphinelike and β- and γ-endorphin receptors have been identified on lymphocytes. ACTH and β-endorphin can both behave like lymphokines. Both γ-interferon and the immunosuppressant drug cyclosporine modify symptoms of naloxone-induced abstinence syndrome in morphine-addicted rats. Edwin Blalock, PhD, at the University of Alabama at Birmingham says "It appears that the immune and neuroendocrine systems have the ability to signal each other through common or related peptide hormones and receptors."

New links are being forged between sleep research and psychoneuroimmunology. Interferon and other lymphokines can enhance slow-wave sleep, and interferon decreases rapid-eye-movement latency, suggesting that sleep may play an important role in conjunction with the onset of slow-wave sleep. Such findings suggest that disturbance of sleep, as occurs in conjunction with depression and with stress, might contribute to the associated impairment of immunity.

The organic brain syndrome found in about 40% of patients with the acquired immunodeficiency syndrome (AIDS), a presenting symptom in as many as 10%, is based on the neurotropic and the lymphotropic natures of the human immunodeficiency virus, which infects monocytes and microglia of the CNS as well as other glial cells and neurons. Psychosocial research in AIDS suggests that attitudes, affects, social support and coping may affect the duration of survival. Current psychoneuroimmunologic research in AIDS and the AIDS-related complex should provide more specific clinical and immunologic correlates of psychosocial variables.

George Freeman Solomon, M.D.
Los Angeles

REFERENCES

Kiecolt-Glaser J, Glaser R: Psychological influences on immunity. *Psychosomatics* Sep 1986;27:621-624.

Solomon GF, Kay N, Morley JE: Endorphins: A link between stress, emotions, immunity, and disease, *In* Plotnikoff NP, Faith RE, Murgo AJ, et al (eds): *Enkephalins and Endorphins*. New York, Plenum Press 1986, pp 129-144.

Stein M, Keller SE, Schleifer SJ: Stress and immunomodulation: The role of depression and neuroendocrine function. *J Immunol* Aug 1985;135:827s-833s.

Methods to Aid Memory in the Aged

There are good news and bad news about improving memory with aging. The good news is that 90% of us will never become demented. The bad news is that the normal memory loss experienced by a typical 75-year-old person is a loss of 30% when compared with their performance during youth. Because there is little to be done about dementia itself, I will discuss improving normal memory losses with aging.

First of all, the terms have been changed. This normal loss used to be called "benign senescent forgetfulness." It was called benign because no one ever died of it. But this term often led physicians to minimize elders' complaints. Yet a loss of 30% would make most people worry: what was benign for physicians appeared malignant to patients. To underline the seriousness of the problem, the National Institute of Mental Health has given such losses the name "age-associated memory impairment."

What can be done about this memory impairment? First of all, it is important to realize that its psychological causes are at least as important as the biologic ones. The psychological causes include a reduced ability to concentrate, less use of organizational schemes and less use of visual image-based associations. These factors can be remedied.

In a recent review I documented that a series of different types of interventions from a number of independent laboratories has shown statistically significant and long-lasting improvement of function by psychological interventions. These interventions include the use of image associations and organizational schemes (mnemonics), relaxation therapies to reduce anxiety that robs elders of their ability to concentrate and a host of techniques for specific situations, such as reading retention, numbers or absent-mindedness. These techniques have been compiled into a workbook that can be used by therapist or patient alike. Using such techniques in the office setting should lead to documentable improvement in function of most elders with age-associated memory inpairment.

Jerome A. Yesavage, M.D.
Stanford, California

REFERENCES

Lapp DL: *Don't Forget*. New York, McGraw-Hill, 1987.

Yesavage JA: Nonpharmacologic treatments for memory losses with normal aging. *Am J Psychiatry* 1985;142:600-605.

Environmental Sensitivity—Allergic to Everything?

A medical subculture has evolved comprising patients claiming polysymptomatic, multisystem, chronic "allergic" reactions to numerous environmental "excitants" present in food, air, water, drugs, fabrics and many other sources and a group of physicians calling themselves clinical ecologists, who believe their treatments can benefit these patients. Before connecting with clinical ecologists, these patients were frustrated in their often-extensive efforts to find physicians who could say, "I know what's wrong with you and I can help you." The patients are diverse, although several characteristics predominate: most are women in their 30s and 40s, stable employees in service or technical-professional occupations (often medical or high-tech settings) who have education beyond high school. They had been treated for several illnesses, frequently had respiratory allergies, had had viral infections and may have been treated for hormonal irregularities.

The severity of the restrictions imposed on these patients' lives before and after their "diagnosis," both by themselves and by the clinical ecology treatment regimen, is impressive. They very often do not return to work and withdraw from social contacts. They monitor their diet closely and avoid tobacco smoke and perfumed products such as soap, toothpaste and deodorant and extend their restrictions to everyone in proximity. Their almost phobic reactions are triggered by solvents, gas heat and vehicle exhausts. They may wear only "natural fiber" clothing, modify their residences by installing electric heat and removing rugs and drapes or moving to "purer" mountain, coastal or desert locales. Some even carry oxygen tanks and masks when away from their "safe" environments. While they may be labeled, according to the *Diagnostic and Statistical Manual of Mental Disorders*, third edition, revised, as having "somatization disorder" or "atypical somatoform disorder," all seem to share a sense of "vulnerability" to illness and environmental hazards and the need to simplify and control their lives. Their efforts to avoid the substances they and their physicians deem harmful preclude participating in most work environments and result in declarations of disability.

Carroll M. Brodsky, PhD, M.D.
San Francisco

REFERENCES

Brodsky CM: 'Allergic to everything': A medical subculture. *Psychosomatics* Aug 1983;24:731-742.

California Medical Association Scientific Board Task Force on Clinical Ecology: Clinical ecology—A critical appraisal (Information). *West J Med* Feb 1986;144:239-245.

Marshall E: Immune system theories on trial. *Science* 1986; 234:1490-1492.

Stewart DE, Raskin J: Psychiatric assessment of patients with 20th-century disease (total allergy syndrome). *Can Med Assoc J* 1985; 133:1001-1006.

Terr AI. Environmental illness: A clinical review of 50 cases. *Arch Intern Med* Jan 1986;146:145-149.

Long-term Effects of Terrorism on Children

Although American children are the frequent targets of violence in the form of abusive injury, they are rarely victims of terrorist attack. Youngsters elsewhere in the world, however, are not so fortunate, and studies of the psychiatric sequelae of terrorism have begun to appear in the literature. Terrorism is the exertion of force threatening annihilation to project a sense of powerlessness on the target population. Its use seems to be increasing, and it is defended as a legitimate means to achieve a desired political objective. In many instances adolescents have assumed the role of combatant and have thereby become the agents of intimidation and destruction.

The pathogenic element of terrorism, apart from any physical injury, is the experience of psychic trauma that results in helplessness in the face of intolerable danger, anxiety and arousal. The susceptibility of any child to psychic trauma is a function of several factors, including genetic, constitutional and personality makeup; past life experiences; age and state of mind, and the content and intensity of the event. In those situations in which children have been held hostage or exposed to a murderous assault, most will suffer the posttraumatic stress disorder. The symptoms of this syndrome for children involve deleterious effects on cognition, emotions, interpersonal relations, behavior and vegetative function. In addition, the developmental phase of the child contributes to the specific constellation of findings. A preschool child is likely to show regression, school-age children often present with somatic complaints and traumatized adolescents commonly display acting-out behavior.

The natural history of the posttraumatic stress disorder in children has not been fully elucidated, but evidence is accumulating that the long-term effects of terrorism can be substantial. Children continue to show posttraumatic play and reenactments, seen as repetitive, unsatisfying activities organized around traumatic themes. Other persistent symptoms include nightmares and night terrors, residual traumatic anxiety and memory disturbances such as retained misperceptions of the event and omen formation. In contrast to adults, children are apparently not subject to amnesia or significant denial of the external reality of a violent event. Adolescents, in particular, remain distressed over their vulnerability during an incident. Youngsters may engage in suppressing conscious thoughts about the event as a device to avoid feelings of embarrassment and anxiety. Prominent personality alterations have been reported, including the emergence of "survivor identity" and delinquency. A common finding is an enduring sense of pessimism with a belief in a shortened life expectancy and recurrent dreams of personal death. Some traumatized children have become suicidal or have manifested full depressive episodes. The prognosis for child victims of terrorism will, in a large measure, depend on the family's and community's coping resources and the availability of psychiatric treatment.

Spencer Eth, M.D.
Los Angeles

REFERENCES

Arroyo W, Eth S: Children traumatized by Central American warfare, *In* Eth S, Pynoos RS (eds): *Post-Traumatic Stress Disorder in Children.* Washington, DC, American Psychiatric Press, 1985, pp 101-120.

Ayalon O: Coping with terrorism: The Israeli case, *In* Meichenbaum D, Jaremko ME (eds): *Stress Reduction and Prevention.* New York, Plenum Press, 1983, pp 293-339.

Eth S, Pynoos RS: Developmental perspectives on psychic trauma in childhood, *In* Figley CR (ed): *Trauma and Its Wake.* New York, Brunner/Mazel, 1985, pp 36-52.

Terr LC: Chowchilla revisited: The effects of psychic trauma four years after a school-bus kidnapping. *Am J Psychiatry* Dec 1983;140:1543-1550.

Children at Risk—New Aspects

Preventing mental illness has been at the roots of child and adolescent psychiatry. Its time has come. There will never be enough psychiatrists to care for the mental health needs of the nation. There has been increasing research in the field of risk that has promise for implementing a prevention program. Although correlation is not causation, there is a relationship between risk and a series of spectral outcomes that occur in adolescence and early adulthood. For instance, it has been shown that continued aggressive and asocial behavior in preschool children is a risk factor for later delinquency and that the fetal alcohol syndrome is a predictor of poor school performance and mild mental retardation. Risk factors in children are predictors of a wide variety of later disorders. Common risk factors in families and children are psychotic parents, depressed parents, divorce and parental disharmony, alcoholism or substance abuse in family, conduct disorders, sexual and physical abuse, loss and separation, mental retardation, chronic illness and poverty.

Risk factors that develop in adolescence, such as teenaged pregnancy and substance abuse, may be risk factors for the next generation of children. Significant outcomes for risk factors are substance abuse, delinquency, suicide and homicide, school dropout, teenaged pregnancy, psychoses and depression and learning disabilities.

Children who are victims of natural disasters, such as "acts of God," or those who witness murder, rape or beatings of a parent or sibling are at risk for the posttraumatic stress disorder. Early intervention is essential for prevention. Physicians often see divorced parents or parents who need to be admitted to hospital for mental or physical illness but do not pay sufficient attention to the plight of the children in these situations. Often these children will benefit from counseling or therapy. Research will continue to define risk factors and proper interventions. Preschool day care, early periodic screening and developmental testing are preventive programs that need to be developed. Research and interventive programs will have an impact on the prevalence and incidence of mental illness in our society. Physicians need to be aware of opportunities for prevention.

Irving Philips, M.D.
San Francisco

REFERENCES

Anthony EJ: Children's reactions to severe stress—The response to overwhelming stress. *J Am Acad Child Psychiatry* May 1986;25:299-305.

Garmezy N, Rutter M (eds): *Stress, Coping, and Development in Children.* New York, McGraw Hill, 1983.

Philips I: Opportunities for prevention in the practice of psychiatry. *Am J Psychiatry* Apr 1983;140:389-395.

Pynoos R, Eth S: The child as witness to homicide. *J Soc Issues* 1984;40:87-108.

Family Involvement in Managing Schizophrenia

Schizophrenia is a severe and disabling illness with a prevalence of about 1% around the world. Symptoms include looseness of associations, delusions and auditory hallucinations, which usually begin in the second or third decade of life and in about two out of three patients persist or become more severe throughout life. Antipsychotic medications are effective at controlling some of these symptoms, but their use involves a one in five risk of tardive dyskinesia, and patients often remain less symptomatic but severely impaired in their ability to carry on the activities of a normal life.

Some decades ago, families were thought to be implicated as a causal agent in schizophrenia. It was believed that double-binding communication patterns created the disease in children. Recent research, however, on the genetics of schizophrenia among twins and adoptive offspring indicates a strong but non-Mendelian genetic factor in schizophrenia. Having a biologic parent with schizophrenia raises the risk of getting the disease from about 1% to 7%.

Attention in family research shifted from causation to patient adjustment. A factor identified as "expressed emotion" was found to be predictive of decompensation among schizophrenic patients. This concept had two components: criticism and overinvolvement. More recently, an aspect of family environment that prevents rather than promotes relapse was identified. This variable, with the similar name "expressiveness," consists of a family's tendency to solve problems together rather than separately, to share information. Schizophrenic persons from families with high scores on the expressiveness subscale of the Family Environment Scale are less likely to be readmitted to hospital.

These observations have led to various new interventions with families of persons with schizophrenia variously labeled "sociotherapy," "psychoeducation" and "family therapy." These interventions have been designed to teach families about the illness, the importance of a consistent antipsychotic medication regimen, the warning signs of decompensation, ways to provide consistent structure in a patient's daily activities and means of reducing abrasive contact between patient and family, thereby reducing the hostility and overinvolvement that has been found to provoke decompensation. Several of these studies have shown success in changing the family atmosphere and reducing decompensation. Schizophrenic patients suffer inpairment in their abilities to think and to maintain social relationships. Indeed, their social networks are smaller than those of normal people. It therefore makes sense to develop interventions that help these networks better support their patient members.

David Spiegel, M.D.
Stanford, California

REFERENCES

Anderson CM, Hogarty GE, Reiss DJ: Family treatment of adult schizophrenic patients: A psycho-educational approach. *Schizophr Bull* 1980;6:491-505.

Brown GW, Birley JLT, Wing JK: Influence of family life on course of schizophrenic disorders: A replication. *Br J Psychiatry* Sep 1972;121:241-258.

Falloon IRH, Boyd JL, McGill CW, et al: Family management in the prevention of exacerbations of schizophrenia—A controlled study. *N Engl J Med* 1982;306:1437-1440.

Hogarty GE, Goldberg SC: Drug and sociotherapy in the aftercare of schizophrenic patients. *Arch Gen Psychiatry* Jan 1973;28:54-64.

Spiegel D, Wissler T: Family environment as a predictor of psychiatric rehospitalization. *Am J Psychiatry* Jan 1986;143:56-60.

Childhood Depression—A Recent Phenomenon?

Adolescent depression and some of its manifestations in violence, anger, suicide and substance abuse have been described and a good deal of research conducted into the etiology, diagnosis and treatment. Only within the past five years or so has any attention been paid to depression in children, with the documentation of both severe depression with suicidal ideation and suicide attempts in young children of primary school age.

In several adolescent suicide studies, an effort to retrospectively study the behaviors and school records of actual suicides has revealed some common diagnostic criteria. Review of the cumulative records of ten suicidal adolescents—that is, actual suicides and severe previous attempts—shows that by the third, fourth and fifth grades there were signs of academic failure, the children were described as loners without friends and almost every teacher described them as looking sad. Parent conferences showed chronic alcoholism of one or both parents or divorce (or both). Death of a parent or sibling was also frequently noted. Histories of child physical and sexual abuse were found in four of the ten cumulative records.

A current review of the indicators of childhood abuse has been important in helping educators to identify children at risk for abuse and subsequent depression or antisocial, angry behavior toward children and adults.

Recently depression has been documented in preschool children in the general population. The Children's Affective Disorder Scale was administered and a parent rating scale given; teachers' observations of sad, isolated or overly hostile children were closely correlated with the results of the tests.

Treatment of children who are depressed has reportedly been successful. Similarly aged children with similar problems have benefited from group therapy with a trained group leader. For very young children, activity or play groups provide peer interaction and tangible signs of adult concern and caring. Family therapy or, at least, work with a parent or parents to demonstrate how caring can be shown by attention to a child's productions of drawings or play is effective in reducing depression. Playing games is often mutually enjoyable to parents and children after the parents have been helped to be playful. Dealing with abusive parents by reporting them to child protective services may or may not remove the abusive parent but should halt the abuse once a child and family are being monitored.

The use of antidepressive medications, especially the tricyclic antidepressants, has proved effective in doses of 25 to 50 mg per day, depending on the size of a child.

We are obviously not talking about childhood depression due to hospital admission for acute physical disease or depression due to dealing with chronic illness like diabetes or life-threatening diseases. Physicians who see children and families can often identify the child who looks sad or despondent or who is nonresponsive to anyone's efforts to engage the child in conversation. At our Children's Psychiatric Hospital where children from age 3 years to 15-year-old adolescents are treated as inpatients, many young depressed patients have been referred by physicians. These are children who have experienced multiple stresses. Some have been abused and have also lost aparent through divorce or death. Many of these children not only appear sad but have great difficulty in trusting adults and have sleeping problems, generally nightmares. Some of these children have retreated into psychotic behavior, hearing threatening voices and staring off into space as if they have visual hallucinations. These children have done well with a combination of antidepressant medications and a caring staff, effective group and individual therapy and an effective special education program that promotes a better self-image through increased competence.

Irving N. Berlin, M.D.
Albuquerque

REFERENCES

Berlin IN: Psychopathology and its antecedents among American Indian adolescents. *Adv Clin Child Psychol* 1986;9:125-152.

Carlson GA, Cantwell DP: Suicidal behavior and depression in children and adolescents. *J Am Acad Child Psychiatry* Jul 1982;21:361-368.

Kashani JH, Holcomb WR, Orvaschel H: Depression and depressive symptoms in preschool children from the general population. *Am J Psychiatry* Sep 1986;143:1138-1143.

Kashani JH, Husain A, Shekim WO, et al: Current perspectives on childhood depression: An overview. *Am J Psychiatry* 1981;138:143-153.

Pfeffer CR, Plutchik R, Mizruchi MS, et al: Suicidal behavior in child psychiatric inpatients and outpatients and in nonpatients. *Am J Psychiatry* Jun 1986;143:733-738.

Antidepressant Treatment for Bulimia

Certain antidepressant medications, particularly imipramine hydrochloride, desipramine hydrochloride and the monoamine oxidase inhibitor phenelzine sulfate, are useful in treating bulimia, the binge-purge syndrome. Double-blind studies have shown the superiority of an active medication over placebo, whether or not the bulimic patient is clinically depressed. Although as many as 75% of bulimic patients may be depressed, anxiety and personality disorders often coexist as well. The mechanisms of action of the medications are unclear, but may be through effects on anxiety or depression or more directly.

While medications may be effective, individual and group therapies using cognitive-behavioral methods that attend to eating patterns, nutrition and psychological issues have about the same success rate as does the use of medications alone. Nevertheless, several of the medication studies were conducted primarily with patients for whom previous trials of psychotherapy had failed.

The prudent approach to treating bulimia is to provide both psychological and nutritional counseling with a carefully worked out meal plan. If a patient does not improve within one to two months, antidepressant therapy should be tried. An antidepressant regimen may be started immediately for patients who present with serious depression or for those whose disorder failed to resolve with competent eating-disorders counseling.

The average medication doses are similar to those prescribed for depression—that is, 200 to 300 mg per day of tricyclic antidepressants or full therapeutic dosages of monoamine oxidase inhibitors, such as 45 to 90 mg per day of phenelzine. A small dose is started at bedtime, after a patient is unlikely to purge. The dosage should be gradually raised over the next few days to a therapeutic range. For any of these medications a minimum of six weeks is necessary for an adequate drug trial. Side effects occur with all of the antidepressant medications and may be particularly common with the monoamine oxidase inhibitors.

Trials with several different medications may be necessary. As many as 50% of patients may become asymptomatic. Not every patient will respond, but most will have at least some symptomatic improvement.

Joel Yager, M.D.
Los Angeles

REFERENCES

Herzog DB: Antidepressant use in eating disorders. *Psychosomatics* Nov 1986;27(suppl):17-23.

Kaye WH, Gwirtsman HE (eds): *A Comprehensive Approach to the Treatment of Normal Weight Bulimia.* Washington, DC, American Psychiatric Press, 1985.

Pope HG Jr, Hudson JL: Antidepressant drug therapy for bulimia: Current status, *J Clin Psychiatry* Jul 1986;47:339-345.

The Dopamine Hypothesis Revisited

The dopamine hypothesis of schizophrenia originally proposed that a functional overactivity of the dopamine neurotransmitter system was responsible for the symptoms of schizophrenia. There has been much evidence to support this theory although most has been inferential and not direct in nature. Early work showed a relationship between neuroleptic drugs and central nervous system (CNS) dopamine systems by observing that neuroleptic administration increased the accumulation of dopamine metabolites in rat brain. With the development of sophisticated receptor-binding techniques, it was found that the affinity of individual antipsychotic drugs for the butyrophenone-labeled, non-adenyl cyclase D2 receptor was closely correlated with their potency as antipsychotics. A major criticism of the relevancy of these findings, however, has been the observation that neuroleptic drugs require weeks to months to be maximally effective.

In recent years, preclinical studies have begun to examine the slow-to-develop effects of neuroleptic drugs on CNS dopamine systems. Evidence from both electrophysiologic and biochemical studies comparing short- and long-term administration schedules suggests that dopamine neurons respond differently with different schedules. Short-term administration of neuroleptics results in increased dopamine neuronal firing, whereas long-term use produces substantially decreased rates. Plasma studies of homovanillic acid (HVA), a major dopamine metabolite in humans, have shown a time-dependent relationship between the levels of plasma HVA and clinical symptoms in schizophrenia. Furthermore, a recent positron emission tomography study found that the quantity of D2 dopamine receptors showed a greater increase in both drug-treated and drug-naive schizophrenic subjects than in controls.

This recent evidence supports the dysfunctional nature of the CNS dopamine system in schizophrenia. Current research will provide more answers and expand our knowledge to include systems that interact with dopamine in patients with schizophrenia.

Allen R. Doran, M.D.
Sacramento, California

REFERENCES

Creese I, Burt DR, Snyder SH: Dopamine receptor binding predicts clinical and pharmacological potencies of antischizophrenic drugs. *Science* 1976;192:481-483.

Davis KL, Davidson M, Mohs RC, et al: Plasma homovanillic acid concentration and the severity of schizophrenic illness. *Science* 1984;227:1601-1602.

Pickar D, Labarca R, Doran AR, et al: Longitudinal measurement of plasma homovanillic acid levels in schizophrenic patients—Correlation with psychosis and response to neuroleptic treatment. *Arch Gen Psychiatry* Jul 1986;43:669-676.

Roth RH: Neuroleptics: Functional chemistry, *In* Coyle JT, Enna SJ (eds): *Neuroleptics: Neurochemical, Behavioral and Clinical Perspectives.* New York, Raven Press, 1983.

Wong DF, Wagner HN, Tune LE, et al: Positron emission tomography reveals elevated D2 dopamine receptors in drug-naive schizophrenics. *Science* 1986;234:1558-1563.

Psychopharmacology of the Aged

At least 20% of people 65 years of age or older suffer from psychiatric symptoms that often abate with drug treatment. Nearly a third of older patients admitted to hospital for medical-surgical care receive psychotropic drugs; the frequency for institutionalized elderly is more than 90%.

The high rate of physical illness in the upper age groups calls for comprehensive evaluation and treatment of underlying medical conditions that may cause mental symptoms before initiating any medication treatment. These physical illnesses and physiologic changes associated with aging will alter absorption, distribution, metabolism and excretion so that drug response and toxicity vary. Dosages, therefore, should begin at a lower range than for younger adults and be increased gradually to minimize side effects and identify low-dose responders.

The limited data from well-controlled clinical trials and clinical experience indicate that most psychotropic drugs used for younger adults are also effective in the elderly. Given the similar efficacy within psychotropic drug classes, the choice of a particular medication depends on its side-effect profile. Low doses of a high-potency neuroleptic drug, such as 0.5 mg to 2 mg of haloperidol, often lessen agitation and psychosis and have few anticholinergic and cardiovascular effects. Clinical trials indicate that antidepressant response rates for geriatric depression range from 30% to 80%. Serotonergic agents, such as trazodone hydrochloride or doxepin hydrochloride starting at 25 mg, appear to help agitated depressions; noradrenergic agents, such as desipramine hydrochloride or nortriptyline hydrochloride, improve retarded depressions. Two recent studies have reported pretreatment systolic orthostatic blood pressure drops of 10 mm of mercury or more to predict a favorable outcome with several tricyclic agents. Benzodiazepines are useful in treating insomnia (for instance, temazepam, 15 mg, an hour before bedtime) or daytime anxiety (lorazepam in 0.5-mg increments). Benzodiazepines with long half-lives tend to accumulate in the blood, are more likely to cause side effects and their use should be avoided.

Nonpharmacolgic measures should always be attempted before using medications and often complement pharmacologic approaches. Psychotherapy is an effective treatment for many forms of geriatric depression. Insomnia sometimes improves with such simple remedies as eliminating daytime napping and taking hot milk and tryptophan—0.5 to 1 gram—at bedtime.

Gary W. Small, M.D.
Los Angeles

REFERENCES

Plotkin DA, Gerson SC, Jarvik LF: Antidepressant drug treatment in the elderly. *In* Meltzer HY (ed): *Psychopharmacology, The Third Generation of Progress: The Emergence of Molecular Biology and Biological Psychiatry.* New York, Raven Press, in press.

Salzman C: Geriatric psychopharmacology. *Annu Rev Med* 1985;36:217-228.

Small GW: Treatment of dementia and amnestic syndromes. *In* Karasu TB (ed): *Treatment of Psychiatric Disorders.* Washington, DC, American Psychiatric Association Press, in press.

Changing Trends in Accusations of Child Sexual Abuse

Reports of child sexual abuse have risen dramatically in the past five years. In a survey recently released by the House Select Committee on Children, Families and Youth, reports of child sexual abuse nearly tripled from 1981 to 1985. This increase is probably due in large part to a heightened awareness of the problem and to mandated reporting. Whether or not the incidence of abuse has actually increased is not possible to determine at this time.

Recent sophisticated studies using retrospective reports by adults reveal important data regarding the prevalence rate and the wide range of sexually abusive activities experienced in childhood. A consistent finding throughout these studies is that the abuse was officially reported in less than 10% of cases.

In one of the more important of these studies, of 933 randomly selected adult women who were carefully interviewed, 28% experienced some kind of sexually abusive episode before age 14 years (a total of 38% before age 18). This and other studies reveal important information regarding the perpetrators of abuse and confirm some trends currently seen in intervention programs aimed at child sexual assault.

Overall, intrafamilial incestuous abuse accounts for less than half of the reported cases. Within this group almost all relatives are identified as perpetrators. Father and stepfather incest, however, accounts for less than 15% of all cases. In contrast to earlier writings, women do sexually assault children, boys more than girls, in a small but significant number of cases (around 5% of the cases of girls and 20% of cases of boys). Again in contrast to previous writings, the parent of the same sex is identified as the molester in a small but significant number of cases.

There are two major trends that present serious difficulties for a psychiatrist involved with these children. There has been a significant increase in the number of very young, preschool children brought to attention because of possible abuse. There is also an increase in the number of allegations of abuse in divorce and child-custody disputes; the latter, however, constitutes a small percentage (less than 5%) of reported cases. In both these situations a careful assessment of the validity of the accusation or suspicion is crucial to protect the child and to protect innocent adults from false accusations. Clinicians increasingly find their role as evaluator or therapist complicated (and compromised) by the need to investigate whether or not abuse occurred and, if so, the identity of the perpetrator. There have been several attempts to develop guidelines to differentiate true from false allegations. Many clinicians working in the field, however, feel that any attempt to simplify this complex dilemma could result in a false sense of security in making this difficult distinction. Clinicians may need to acknowledge that they are not able to determine with certainty as to whether abuse has occurred and by whom, and to recommend a moderate course of action that protects both the child and the accused adult.

Graeme Hanson, M.D.
San Francisco

REFERENCES

Corwin D, Berliner L, Goodman G, et al: Child sexual abuse and custody disputes: No easy answers. *J Interpersonal Violence* Mar 1987;2:91-105.

Green AH: True and false allegations of sexual abuse in child custody disputes. *J Am Acad Child Psychiatry* Jul 1986;25:449-456.

Russell DEH: The incidence and prevalence of intrafamilial and extrafamilial sexual abuse of female children. *Child Abuse Neglect* 1983;7:133-146.

Genetics of Mental Illness

Evidence that genetic mechanisms may play a significant role in the etiology of mental illness has steadily accumulated since the beginning of the century. Although twin and adoption studies of manic-depressive illness and schizophrenia have formally established the existence of genetic factors, the actual mode of transmission is unclear, as are the means by which such genes might express themselves to create the disorders in question. The probable heterogeneity of most psychiatric disorders and their variable penetrance have also significantly confounded the design of investigative protocols and interpretation of the data produced.

One approach to this problem has been to identify possible genetic "trait markers" that may be associated in some manner with susceptibility to the disorder in question. The discovery of such markers would allow the study of persons who were gentically susceptible but who themselves had not yet experienced the formal disorder and of the mechanisms by which genes and environment could interact in additive or synergistic ways to affect the overall risk factor. In schizophrenia, genetic marker studies have focused mainly on possible associations with blood groups and with the human leucocyte antigen (HLA) system. Although most evidence would indicate no close association with any ABO blood group, many studies have found associations with various HLA markers, the most consistent finding being an association between A9 and paranoid schizophrenia. More recent reports have shown associations between schizophrenia and various class II antigens of the histocompatibility complex, suggesting that possible autoimmune mechanisms may be relevant. Other investigators have proposed poor eye tracking as a possible biologic marker for schizophrenia and reported that the transmission of both-eye tracking and schizophrenia is concordant with a single dominant gene model.

While the findings of epidemiologic studies of ABO blood types and HLA loci in affective illness have been contradictory, linkage studies of X chromosome markers such as color blindness and of HLA haplotypes have shown strong evidence of an association in a few specific pedigrees. Genetic studies of anxiety and obsessive-compulsive disorders are comparatively fewer in number, but point towards the existence of similar indices of genetic risk. Thus far, developments in recombinant DNA technology have not been widely used in studies of the inheritance of mental illness. In one recent study, however, analysis of the segregation of restriction fragment length polymorphisms was used to locate an autosomal dominant gene strongly involved in the transmission of manic-depressive disease to the short arm of chromosome 11. The absence of such a linkage in other bipolar pedigrees indicates genetic heterogeneity.

Victor I. Reus, M.D.
San Francisco

REFERENCES

Egeland JA, Gerhard DS, Pauls DL, et al: Bipolar affective disorders linked to DNA markers on chromosome 11. *Nature* Feb 1987;325:783-787.

Gurling H: Application of molecular biology to mental illness—Analysis of genomic DNA and brain mRNA. *Psychiatric Dev* 1985;3:257-273.

Kendler KS, Eaves LJ: Models for the joint effect of genotype and environment on liability to psychiatric illness. *Am J Psychiatry* Mar 1986;143:279-289.

Marks IM: Genetics of fear and anxiety disorders. *Br J Psychiatry* 1986;149:406-418.

McGuffin P, Sturt E: Genetic markers in schizophrenia. *Hum Hered* 1986;36:65-88.

ADVISORY PANEL TO THE SECTION ON PSYCHIATRY

Paul F. Slawson, M.D.
Advisory Panel Chair
Section Editor
CMA Scientific Board Representative
University of California, Los Angeles

Edward D. Titus, M.D.
CMA Section Chair
Lynwood

Harold E. Mann, M.D.
CMA Section Secretary
Berkeley

Harriet S. Kaplan, M.D.
CMA Section Assistant Secretary
Torrance

Louis Bozzetti, M.D.
Loma Linda University

Thomas A. Gonda, M.D.
Stanford University

Joe P. Tupin, M.D.
University of California, Davis

W.E. Bunney, Jr, M.D.
University of California, Irvine

Lewis Judd, M.D.
University of California, San Diego

Samuel H. Barondes, M.D.
University of California, San Francisco

R. Bruce Sloane, M.D.
University of Southern California

Howard Wallach, M.D.
Los Angeles

Robert B. Schorr, M.D.
Modesto

Douglas Kahn, M.D.
Newport Beach

Alan Adler, M.D.
La Mesa

William Van Stone, M.D.
Palo Alto

AYR INSURANCE AGENCY

Sponsored by

The Connecticut State Medical Society

FEATURING:
Term Life Insurance
$300,000 Maximum
Low Non-Smoker Rates
No Physical Required

Also FEATURING:
Disability Income Insurance
Hospital, Surgical and Major Medical Insurance
Office Overhead Insurance

"Growing Bigger by Serving Better"

Alison Ayr
J. Lauren Ayr

David Gould
William Harrington

105 Sanford Street, Hamden, CT 06514
Telephone 288-4302

A 40-Year Prospective of Pediatric Cardiology: From Powers to Pearson

RUTH WHITTEMORE, M.D.

Dr. Grover F. Powers became Chairman of Pediatrics at Yale in 1926 and retired in 1952. Dr. Daniel Darrow, one of Dr. Powers' closest associates, said when the second Howland award was presented to Dr. Powers, "Pediatrics at Yale will long be considered his creation and the measure of his life's work." Rereading some of Dr. Powers' papers one realizes how profoundly involved he was in pediatric education not only for the medical students but also the house staff as well as the continuing education of the pediatric practitioner. He instilled in these future pediatricians concerns not only about an illness itself, but how this might affect the entire family. He also, in a subtle way, infused in them their responsibility to the community and society. At one point during his professorship, I understand over 30% of the Yale medical graduates of one year entered pediatrics. Furthermore, many of the "Powers boys" became professors and chairmen of pediatric departments in a large number of our well-known schools of medicine.

This paper will present some personal remembrances concerning the author's association with Dr. Powers as well as a few of the many changes which have taken place in the field of pediatric cardiology since those early days, and some of the newer collaborative efforts which have developed.

My first acquaintance with Dr. Powers was in 1941 when he was known as an exceptional bedside teacher to medical students. I received my first pediatric indoctrination during that summer as a substitute intern in the era when we started out the day with bacteriology rounds with Dr. Trask and Mildred Fousick. Dr. Daniel Darrow was in the chemistry lab with electrolytes and metabolites, Dr. Herbert Miller in the outpatient department, Dr. Edith Jackson was establishing rooming-in on the newborn service, and Dr. Yannet was at Southbury Training School which had been largely instigated by Dr. Powers. Morning rounds were from bed-to-bed with Dr. Powers who had the uncanny ability in his soft high pitched voice, of posing questions to which there were no answers. He would try to stimulate us to find out. In fact, I found myself spending my evenings off in an animal laboratory working with ferrets and nasal washings during an epidemic of bronchiolitis. Another highlight at that time was our Thursday morning social work rounds with Dr. Powers and Elizabeth Rice where the child and family needs were discussed. Afternoon teas in the Pediatric Study provided further stimulating conversation and questions. Dr. Powers had the highest respect for the pediatric practioners in the community, Drs. Cullota, Krosnick, McGuire, MacAlenney, Harrison, Salinger, Wakeman, Clement, Wilson, to name only a few. Furthermore, his wisdom was constantly being sought on many federal and national committees.

His work in education continued even after his retirement in 1952 and he received many honors, perhaps the most valued one being the award of the John F. Kennedy Foundation presented to him in 1965 by President Lyndon Johnson. This was the statue of the angel Raphael holding an infant engraved in Steuben glass. The inscription read:

> "The great Seraph, Raphael, mightiest of Angels, patron of science and healing, whose hands stirred the water of the pool at Bethesda, protector of the young Tobias, helper of the patriach Abraham, paragon of knowledge and love."

My entrance into the field of pediatric cardiology was quite by accident, just because I happened to be in the right place at the right time. Dr. Alfred Blalock operated upon the first blue baby while I was resident at Harriet Lane Home, The Johns Hopkins Hospital. This child had turned from blue to almost pink, but then developed bilateral tension pneumothorax which required some heroic measures, but she survived. Dr. Helen Taussig had called this operation the result of "armchair surgery." The chief problem was a decrease in pulmonary arterial flow. She reasoned that as long as the ductus arteriosus remained patent in infancy these blue babies did quite well, but when it normally closed off they then developed trouble. To create an artificial ductus therefore would certainly help this basic problem.

The following two years I had the good fortune of spending with Dr. Taussig as one of her first cardiac fellows. She was now considered the "mother of pediatric cardiology"

RUTH WHITTEMORE, M.D., Clinical Professor of Pediatrics, Section of Pediatric Cardiology, Yale University School of Medicine, New Haven, CT.

This paper was presented as the 28th Grover F. Powers lecture at Yale University School of Medicine on April 1, 1987.

as she was the first one to correlate the clinical observations with the specific malformation of the heart. I was subsequently requested by both Dr. Powers and Dr. Martha Clifford of the State Department of Health to come to Connecticut to set up a demonstration multidisciplined diagnostic service for children with heart problems, financed by Children's Bureau through the state. I understood that 400 children were waiting to be seen. A cardiac surgeon from Dr. Blalock's service, Dr. Harry Schumacher, had preceded me to Yale which enabled us to establish a complete service.

In those early days, Dr. Powers was being accused by some of his professorial friends of permitting subspecialties to be developed within pediatrics. I was uncomfortably privy to a conversation between him and a well known Professor of Pediatrics from New York, who was criticizing Dr. Powers saying that he felt all pediatricians should know everything about a child's heart as well as other systems and that there should not be any subspecialties within pediatrics. Dr. Powers stood his ground saying that there was going to be such expansion within the field of pediatric cardiology that there was no way that any one pediatrician could keep up to date with everything about the heart as well as all other systems, especially the heart.

One other fond memory I have, is on my return from a brief vacation I found that Dr. Powers had moved out of his room to which he was accustomed to retreat to write,—a room we called his "sanctum sanctorum." This had permitted my staff of five to expand from their two small rooms into the third room. We had a fluoroscope as well, and were running a training program in those two rooms which were crowded to say the least. First of all I was appalled that he should have taken this action with no request on my part, and when I tried to thank him he replied with an apology that he was "sorry but we would have to put up with my books on the book shelves." There was hardly a day he did not put his head into the office. He also expected you to come immediately when requested, even in the middle of giving a lecture. He touched everyone, patients, parents, staff alike, with his spirit and his kindness.

When we started in pediatric cardiology, all we had was our stethoscope, blood pressure manometer, three lead electrocardiograms, the fluoroscope, and simple x-ray with barium swallow. Thanks to biomedical engineering we now have twelve-lead electrocardiograms, direct writers, vectorcardiograms, echocardiograms, velocity determination by Doppler technique and many other advances enabling us to better understand the spatial relations of the heart with non-invasive techniques. Our catheterization laboratory has changed completely from the original fluorscope table and our primitive method of measuring pressures by what we called our "Christmas tree." This consisted of a pole extending to the ceiling of the room from which hung several bottles of saline which could be connected to an extended spinal manometer tube in order to estimate the pressure within any cardiac chamber (measured in centimeters of water which had to be translated into mm. of mercury—60 mm. Hg was as high as we could obtain). At that time we were doing only right-sided cardiac studies. It was with our early acquired equipment and a ureteral catheter that Dr. Harned catheterized the first baby. It took us several years to convince Blue Cross and other insurance companies that cardiac catheterization was a diagnostic test and not just a research tool.

The current catheterization laboratory has now become a miracle of electronic devices which record pressures and pulse waves, analyse oxygen and other blood gases. Automated angiocardiographic equipment allows two simultaneous pictures to be recorded at right angles at 64+ frames per second, (originally it was two frames per second), and this is played back immediately on video equipment.

New catheters have been developed to permit better invasive studies of the heart. Dr. William Rashkin started 20 years ago and others followed to contribute additions to the catheters. Some of these catheters now permit former surgical procedures to be accomplished at the time of catherterization such as the creation of an opening in the atrial septum to help the young babies with transposition of great arteries to obtain better admixture of blood, and balloon catheters to stretch tightly stenosed valves. More recently others have added devices to enable closure of a patent ductus or some atrial defects.

X-rays also have expanded into many avenues of diagnostic imaging especially with the use of ultrasound. We now can study the structure and function of the heart non-invasively, the placement and movement of valves and identify malformations while playing the study back on video tape. To this has been added the Doppler method of flow velocity determination to help us determine the degree of flow or leak within the cardiac structures as well as estimate the pressure differences across the valves. This non-invasive method has minimized the need for many diagnostic cardiac catheterizations. Furthermore the ultrasound has penetrated the uterus to help us identify cardiac and other problems in the fetus. Fetal echocardiography is now a must for any pregnant woman when there is a history of congenital heart defect in the family or in the event of arrhythmia or concern about fetal size.

Perinatal cardiology was started at Yale in 1977 through the foresight of professors such as Dr. Pearson and others who combined the efforts of the departments of obstetrics, pediatrics and diagnostic imaging. Add to this the department of anesthesiology, the section of cardiopulmonary physiology, and our intensive care specialists we have an exceptional unit to care for the potential newborn in trouble.

There have likewise been tremendous advances made in cardiovascular surgery and surgical management of these patients. Of the first 400 children with congenital heart anomalies, we were able to help only the 10% who had a patent ductus arteriosus, coarctation of the aorta, the blue babies with tetralogy of Fallot, and only a few with transposition of the great vessels and pulmonary stenosis

stenosis or tricuspid atresia. Dr. William Glenn added several surgical advances, chief of which was the procedure which bears his name, to help the children with tricuspid atresia. Open heart surgery developed around 1955 and was soon performed at Yale.

By 1960, when our demonstration program was turned over to Yale, we had been able to help 74% of the children with congenital heart defects. At present, that figure is over 90% thanks to many ingenious and diagnostic and surgical advances and the skills of our cardiovascular surgeons such as Drs. Glenn, Hillel Laks, and now Dr. Gary Kopf. We no longer see the very cyanotic infants or children suffer from their attacks of paroxysmal dyspnea as we did in the early days, there little rib cages indented from the constant squat position in which they would play. Diagnoses are now made earlier and they are treated accordingly.

Over the years I have been fortunate to see many of my patients mature to adulthood. Following an early experience with one of my old cyanotic patients who came to me pregnant in the mid trimester with a very small uterus, I became concerned about the role of hypoxia on the developing fetus. This patient delivered a 1300 gm (2¾ lb.) infant at 36 weeks gestation who made up for lost time in her weight gain while in the premature nursery. Open heart surgery had just become available for correction of tetralogy of Fallot. We would soon lose the opportunity to obtain any information about the effect of maternal low oxygen content on pregnancy because most of such young adults would receive total corrective surgery in the near future. Therefore, the female patients 18 years or older were invited, if they so wished, to contact me in the event of pregnancy to enable me to follow them along with their obstetrician, to be present at labor and delivery and to permit me to examine the baby in the neonatal period at six weeks, six months, one year and three years according to a protocol, and to have developmental evaluations performed at nine months and three years. The purpose was not only to identify the problems of hypoxia and its effect on the baby, but also to determine the rate of recurrence of cardiac anomalies in these children.

Over the next 25 years, 252 such women contacted me who have given birth to 413 infants. For the sake of ease I have divided the mothers into three groups according to their basic hemodynamic problems. Group A consists of those that were born with a cyanotic malformation where there was a right-to-left shunt causing cyanosis, Group B those with obstructive lesions to the outflow of either ventricle without major shunts (aortic stenosis, pulmonary stenosis, coarctation of the aorta), and Group C those who had left-to-right shunts with over-perfusion of the lungs (the septal defects and patent ductus arteriosus). The largest group was the latter. To summarize some highlights, the average birth weight of the infants of mothers who were cyanotic during the pregnancy (that is, those who had an oxygen saturation below 90% and compensatory polycythemia manifest by hematocrits above 45%), was only 2044 gm, or 4½ lbs. On the other hand, all other mothers had normal oxygen saturations, normal red blood cell counts, including those who had had corrective surgery in group A, and their infants were of normal birth-weight averaging under 3000 gms.

The number of live births were as expected (79%) in all groups except those who were cyanotic during pregnancy where only 53% were successful. Of interest, was the relative increase in the size of the placenta of these small babies comparable to that reported in pregnancies at high altitude areas such as in the Peruvian Andies.

All the infants of these cyanotic mothers were small, 29% were premature, (born less than 37-weeks gestation), 80% weighed less than 2.5 kg and 50% were small for the gestational age. This correlated with the degree of polycythemia, a manifestation of the degree of hypoxia.

These infants of our cyanotic mothers, however, once they were born grew very well and seemed to make up for lost time in the neonatal period.

At the conclusion of the three years, 14.4% of children had a congenital cardiac anomaly but when those children of families with history of heart defects or with genetic syndrome were removed, the incidence of cardiac malformations corrected to 10.6% in infants of the sporadically affected mothers. Indeed we had found we included seven mothers with genetic syndromes and another eight mothers who had a strong family history of heart anomalies such that the possibility of having an infant with a defect would be much higher. In fact, in this group of 15 mothers 58% of their children had proven congenital heart problems.

We concluded that, if followed carefully, mothers with cardiac disease who had neither spontaneous abortions nor medical terminations can expect a reasonable outcome to pregnancy if followed carefully by an experienced obstetrical cardiac team. Mothers with pulmonary hypertension of moderately severe degree, however, should not carry pregnancies and therefore termination was recommended because mortality is very high.

This study firmly established the fact that a careful genetic and family history is most important for counselling such patients from the genetic standpoint. Mild malformations are just as important as the severe anomalies in such a genetic study.

The next obvious question was, "What of the children of fathers with congenital heart defects?" To date we have seen 292 children of 151 affected fathers; 9.9% of these children have had congenital heart defects proven, not statistically different from the maternal study at this time. Obviously the paternal study is retrospective. Concordance in both studies has been approximately 66%.

Some of our review of the fathers has, however, been depressing. Of the first 151 families that we saw, 45 fathers had left-sided obstruction, five of whom were deceased, all sudden deaths except one who died of surgical complications. Of these 40 fathers seen, 26 had aortic stenosis and 14 had coarctation of the aorta diagnosed in childhood, but 12 of these 14 had evidence of moderate to severe aortic valve obstruction at this time. On our current evaluation, one patient died very suddenly a few days after we saw him and before he was able to keep his appointment for an echocardiogram. We were informed that he had evidence of familial idiopathic hypertrophic subaortic stenosis, and that his father had died of the same problem two years before. Two (of the 40 fathers) were in such severe condition that they required urgent surgery.

Twenty-four more of these 40 young men have moderate to severe aortic obstruction, many of whom have calcified valves. Eight had had further surgery in the adult period. What of their care? Of these 24 men, four have not had any physician, seven have only sporadic care, ten have been seen by cardiologists who are permitting them to continue, and three are under the care of new HMO's with new physicians. The average age of these men is now 39 years. The average age of the deaths in our group was 31.4 years.

We as pediatric cardiologists obviously are aware of the fact that congenital aortic stenosis is a far different problem than aortic stenosis of the adult population. Unfortunately, sudden death may be the first manifestation of trouble. Commissurotomy of the aortic valve in childhood is certainly not a cure but a palliative procedure only, contrary to what many of these patients were lead to believe. Many pediatric cardiologists express concern about the care our graduates may receive which further raises the question, should we continue to follow them as we are familiar with *congenital* heart anomalies.

Another concern for all pediatricians pertains to the potential practice of preventive cardiology. Several years ago, Children's Bureau asked "What is the problem of hyperlipidemia among children?" Although we knew that certain hyperlipidemia's were familial a five year study began identifying index patients admitted to the hospital who were 50 years or less with some evidence of coronary ischemia and an elevated cholesterol or triglyceride level. The average age of these 296 patients was 44.3 years. Of there 925 children we were able to test 709 or a little over ¾ of them. 31% of those tested were abnormal; 36% had familial hypercholesterol (Type II), and 29% had triglyceride elevation with or without an increase in cholesterol (Type IV). A total of 56% of all the families were affected.

We became concerned as to what we can do to help these children who suddenly are aware of the fact that they have the same disease that has caused the death or the illness of their father or mother. With proper dietary management we have found that many young children have been able to lower their cholesterol to near normal levels. One child was two years old when his 34 year old father dropped dead and he was found to have a cholesterol of 280. On a well controlled diet and cholestyramine, his cholesterol values came down and he is maintained at near normal values in his later teens. Many epidemiologists and statisticians who have studied this problem over the years, feel that we can decrease the incidence of early heart attacks or at least prolong the life of some of these patients provided they are indoctrinated with adequate care and habits in childhood. The younger they are to establish the habit of good diet the more likely we are to have good success. We now have the promise of a new medication (Mevinolin, or Lovastatin) soon to be released by FDA. This appears to partially correct the over production of cholesterol within susceptible bodies. Obviously during the 'teen ages there is peer pressure but many of them have done very well and this new medication seems to hold a good deal of promise.

I have said little about rheumatic fever which was a major problem when we first arrived. Our caseload of rheumatic fever fell from 30% in the early years to below 2% by 1960. This disease is apparently now resurfacing 8-10 fold in several areas in this country at present. The incidence of rheumatic fever had declined over 90% over the past 20 years in several studies within these United States but has been rampant in the third world countries. While rheumatic fever has been apparently on the decline, streptococcal pharyngitis has continued, but the nature of the Group A streptococcus may well be changing to become more rheumatogenic. This concern has developed at the same time physicians have become more lax about insisting on ten days of therapy for strep. throats, etc, and the length of time and the necessity of taking penicillin as a prophylactic agent to prevent recurrences of rheumatic fever in such affected patients. Antigen tests have been developed. Further studies have possibly identified one or more B-cell alloantigens detectable by monoclonal antibodies which may have the potential to identify the patient predisposed to develop rheumatic fever if exposed to the appropriate agent. Furthermore, advances in immunology and further understanding of the M-protein structure may well be paving the way for the development of a vaccine for susceptible persons.

Over the past 40 years we have covered far more ground than ever anticipated or that has been mentioned. What of the future? Heart transplants and heart-and-lung transplants are still in their infancy with relatively poor survival rates at present. What patients are appropriate candidates? This is still being evaluated. Far more perfection is needed. There are many more ethical problems to be solved as well as many clinical problems.

Technology must not take over our common sense and clinical judgment. Our fundamental concern is to improve the health of the patient as well as the quality of life. Furthermore, as Dr. Powers emphasized, the cardiac child must not be looked at as a "heart" but as a whole child and that child is a member of an entire family and must become a future contributing member to society. In spite of all the new equipment, procedures, and knowledge, we still must depend on the fundamental stethoscope, clinical judgment, common sense and the good Lord's guidance.

Challenges in Long-Term Care Policy

DAVID MECHANIC

The health care arena is in extraordinary ferment.[1] The traditional stuctures that have defined medical practice, such as the hospital and solo physician practice, are undergoing major transformations, but the shape of future organization is still in an early stage of evolution. The realignments now taking place are experienced as major dislocations by providers and managers of existing services, but there is little reason to anticipate that adequately insured consumers will experience dramatic differences in patterns of care or in the responsiveness of health services. The biggest challenges for the system will be maintaining services for the uninsured and for patients covered by public programs facing fiscal pressures and responding to the emerging needs of an increasing elderly population.

The obvious strains are most likely to be felt in the public sector, and particularly in the financing and administration of the Medicare and Medicaid programs. Also, as more of the population enters the ages associated with disability and dependence, our failure to develop a coherent policy of long-term care that protects the elderly and their families at the period of greatest vulnerability will increase in salience and will become a more explosive social issue. We would do well to face the restructuring of Medicare and Medicaid, and the development of long-term care policies now, before the demographic and financial implications push us into expedient but poorly conceived solutions.

The Demographic Scenario

The awesome consequences of the aging of the American population, and its implications for dependency and medical and social services costs, are now commonplace. The population age sixty-five years and over has increased from 8.1 percent in 1950 to approximately 12 percent now, and will continue to increase moderately until 2010, when this age group will constitute almost 14 percent of the population. In the subsequent two decades as the postwar birth cohorts reach age sixty-five, the proportion is expected to increase to approximately 21 percent. The population age seventy-five and older, now constituting two-fifths of those over sixty-five, will increase to almost half in the next twenty-five years.[2]

Age distribution is largely a product of the size of varying age cohorts and changing patterns of mortality. Trends in these demographic patterns result in dramatic increases in the numbers of elderly eighty-five years or older. Between 1960 and 1980 this subgroup increased faster than any other age group, and is expected to constitute almost 15 percent of those over sixty-five within the next fifteen years.[3] The proportion of persons reaching age sixty-five who attain age eighty-five increased from 23 percent in 1950 to 38 percent in 1983.[4]

Projections into the future, based on present patterns, are always a hazardous endeavor. We have been less than accurate in anticipating changes in social and political values, new knowledge and technologies, trends in economic well-being, attitudes toward income redistribution, and the occurrence of new epidemics. As we project into the future, we can be confident that our extrapolations from the past will be faulty, but failure to plan seriously for the inevitable would be foolish indeed.

Barring extraordinary and unexpected events, the changing age distribution, and particularly the growing numbers at ages where chronic illness and limitation of function are common, will put significant pressures on our systems of social welfare and entitlements. It may be that changing risks throughout the lifespan will lead to some compression of morbidity—a debatable hypothesis.[5] However, even if the period of chronic illness and incapacity is compressed, the magnitude of the overall burden of illness will be well beyond our experience. Demographic patterns, together with scientific and technological capabilities to sustain life, already strain our social welfare structures, but we still have the luxury of some time to plan intelligently for the momentous challenges as the baby boom generations move into their later years.

With an aging society, attention is focused commonly on rates of dependency in the population and ratios of those of typical employment age relative to others. Inevitably, this suggests alarm about the falling proportion of workers relative to the population. Such ratios, projected over time, are not particularly meaningful without careful considera-

---

DAVID MECHANIC, Director of the Institute for Health, Health Care Policy, and Aging Research at Rutgers University, where he formerly served as dean of the Faculty of Arts and Sciences. He is an active member of the National Academy of Sciences' Institute of Medicine.

Reprinted from the Summer 1987 issue of *Health Affairs* Project HOPE, Millwood, VA.

tion of the likely trends in automation in the production of goods and services, advances in computer technologies and robotics, the number of children, and possible changes in norms and values about who should work. Growth of female participation in the labor force made projections based on earlier norms meaningless, and we need not assume that either retirement age or its downward trend is immutable. While retirements prior to age sixty-five are increasing, the factors motivating such behavior could change substantially with altered views of the lifespan, economic pressures and incentives, and new conceptions of what it means to be elderly.

It is surprising, for example, that so little attention has been given to how immigration policy over the next fifty years might help insulate the society from shocks associated with a less than optimal age distribution. Immigration policy has set quotas in relation to varying nations, occupational strata, and relationships to U.S. citizens. In theory, an immigration policy planned over a couple of decades could help smooth the age distribution to moderate some of the most alarming consequences of an aging society. This would substantially deviate from current policy and trends, but the use of immigration policy as an instrument for demographic balance is one of many possible strategies for an aging society.

The Implications of Aging for Health Care Planning

The health status of varying birth cohorts as they approach the later years relfects a broad history of personal habits and environmental influences throughout the lifespan. There is indication that successive cohorts at different ages in middle and later life are more healthy, possibly a product of improved living conditions during their development or a result of positive health behavior that reduces exposure to risk factors. Aggregate data on health status and illness by age are not particularly informative because the inclusion of persons whose mortality is reduced or delayed through sophisticated medical measures inflates aggregate overall rates of illness and disability, which may mask other improvements in health status in the population.[6] Increased longevity of elderly populations with serious chronic illness, however, poses serious challenges for the provision of medical and other long-term care services. As individuals move into the eighth and ninth decades of life, the probability of decreased function, dependence on others, and risk of institutionalization substantially increases. Thus, the number of individuals at risk, while only a small portion of those over sixty-five, is a relatively large segment at age eighty-five.[7]

Long-term care for the elderly is substantially rationed by the abhorrence many elderly have for residence in nursing homes. Persons who could meet any reasonable criteria for nursing home admission hang on with the assistance of family, friends, and neighborss to avoid entering institutions. The trigger for admission is often not the level of need alone, a criterion that could be met by many living outside nursing homes, but rather the loss of a spouse or other significant supportive persons or a major illness or accident that makes persons lacking supports unable to care for themselves.

There is a perversity about a system of care that depends for its equilibrium on public abhorrence. Those elderly with significant needs for care greatly outnumber those in nursing homes. For many such patients, home and community care are preferable, and in the individual instance, economical as well. But shifting services to the community removes the barrier of abhorrence, opening increased demand that promises aggregate long-term care costs in excess of current expenditures. Herein lies the dilemma and the challenge that a prudent and humane public policy must address.

Policy Issues at the Federal Level

Cost-containment pressures affect government programs acutely because the federal government pays a large proportion of total health expenditures (28.9 percent in 1983), because health care costs constitute a significant component of the federal budge (over 12 percent in 1983), and because health expenditures make up even a larger proportion of the federal budget under administrative and legislative control. Given its magnitude and discretionary possibilities, it becomes an area of close scrutiny in times of budgetary constraint. Projections of the expected insolvency of the Medicare Trust Fund have been pushed forward as the economy has improved, but demographic realities will require us to reassess the future structure of Medicare, and to face the inadequacies of long-term care provision.

Ideally, we seek a program that eases access to high-quality care among those who most need care; distributes entitlements in an equitable way; protects vulnerable individuals and their families against catastrophic costs; and shapes incentives for professionals, patients, and caretakers to promote improved function and rehabilitation efforts. Notwithstanding the ambiguity of such terms as access, quality, need, and equity, it seems clear that in addition to Parts A and B (hospital costs and physicians' services, respectively), as currently constituted, Medicare should include protection against catastrophic acute care costs. But this is only a small part of the problem. A strategy for long-term care is required that makes it possible for the most needy to obtain care without first impoverishing themselves or their families, a common occurrence in many jurisdictions under Medicaid regulations. Medicare costs cover over only 44 percent of health care costs of the elderly, and recipients now contribute a larger proportion of income out-of-pocket than they did prior to 1966 when the program was implemented. In some subgroups, such expenditures exceed acceptable levels of total income.[8]

The responsibility of the elderly. As we examine ways of reducing cost sharing for those with least income, there is also merit in examing carefully the capacity of some elderly to take responsibility for greater costs as a way of protecting and enhancing the benefit structure. Alternative approaches including taxing the value of the Medicare benefit among recipients whose incomes exceed a defined ceiling, eliminating other preferences to the high-income elderly such as the additional tax deduction, or taxing more Social Security income above a specified income level. Means testing is increasingly suggested but would alter the program irrevocably. The beauty of Medicare is its universality and its acceptance and support across all social groups in the population. Unlike Medicaid, it is not a welfare program and is immune to the stigma and distrust commonly associated with the Title XIX program.

The obvious needs to address catastrophic costs and to plan more appropriately for long-term care would suggest greater dependence on general revenues. In the context of a large deficit, an ideology supporting the contraction of the federal government, and resistance to increased taxes, this is no easy matter, and identifying ways to reduce program expenditures will continue to be the main emphasis of public policy. In the absence of increased revenues, there are four general alternatives: changing eligibility criteria to reduce the pool of beneficiaries, increased cost sharing, continued tightening of reimbursement, and modifying the benefit structure. Most of these alternatives are not desirable, but we probably will see efforts in all of these areas.

The problems of Medicare and Medicaid are not isolated issues but should be seen in the context of health subsidies in general. Recently, Enthoven estimated that the tax subsidy of health insurance benefits was almost $50 billion and likely to increase as a result of a recent Internal Revenue Service (IRS) ruling permitting health insurance premium contributions to be purchased with before-tax dollars when certain conditions are met.[9] While some subsidy encouraging health care insurance is defensible, existing subsidies have encouraged overinsurance among the affluent, which, if we take the Rand Health Insurance results seriously, contributes little to improved health status but increases utilization and cost.[10]

There is broad recognition of the inequity of this subsidy, but those who benefit from it have been effective in resisting its modification. Revision may be more feasible, however, within a framework that reallocates the subsidy to address such issues as catastrophic costs, long-term care, and the needs of the uninsured and those institutions that provide much of their care. Reducing a tax benefit to lower federal expenditures may be less compelling than devising a more equitable and acceptable framework for care overall. The latter, if well designed, could coalesce a range of influential constituencies that would potentially provide the necessary political momentum.

The role of public financing. A major challenge is to maintain the universality of Medicare, but in a context that offers broader protection against catastrophe and a mode of financing that protects low-income recipients from burdensome levels of cost sharing. The increased cost sharing in Medicare involving an inpatient deductible of $520 for each period of illness, a $75 dollar deductible and 20 percent coinsurance for approved doctors' charges, and heavy coinsurance for hospital stays exceeding sixty days results in devastating costs in individual instances. Approximately two-thirds of Medicare patients protect themselves by purchasing Medigap insurance that covers much of these costs, but such policies are expensive relative to the benefits provided because of marketing, administrative costs, and profits. Medicare could provide expanded benefits at no greater cost than the elderly now pay for Medigap protection. This approach was suggested by the Social Security Advisory Council, advocated by the Secretary of the Department of Heath and Human Services, and is now being considered by Congress.

The 30 million Medicare recipients are a highly varied group, economically and otherwise. Disparities in income are large and tend to be underestimated, since affluent elderly receive a larger proportion of their resources from unearned income that is not fully reported.[11] A significant proportion of elderly have modest incomes (approximately half within 200 percent of the poverty line) but are not sufficiently destitute to be eligible for Medicaid.[12] Thus, health expenditures may usurp an intolerable proportion of their income, preventing them from fulfilling other needs. One approach to remedying the uneven result of cost sharing is to provide a tax credit to recipients whose out-of-pocket health expenditures exceed some reasonable proportion of income. Those whose incomes, in contrast, exceed specified levels could be taxed on the average value of the Medicare benefit.

Much attention has been focused on efforts to tighten reimbursement under Medicare and the implementation and consequences of Medicare's prospective payment system (PPS). The growth of physician payment under Medicare Part B has also stimulated a variety of measures to control physician payment, including a freeze on fee increases. (Payment to physicians increased 106 percent between 1979-83, almost three times the gross national product.[13]) The unwillingness of many physicians to accept Medicare assignment puts the burden of payment on the elderly for charges beyond those allowable by Medicare. This can substantially inflate required out-of-pocket expenditures. Various proposals are being considered to encourage physicians to accept assignment, as well as mandatory assignment approaches.[14] There is concern that mandatory assignment would make physicians less accessible to the elderly, but, given the important contribution Medicare makes to physician income, the growing numbers of physicians, and the increasing competition for patients, it seems unlikely that many physicians would opt out of Medicare. Measuring the quality and responsiveness of care, in contrast, is more difficult, but fears about diminished attention to patients with mandatory assignment constraints, particularly in light of the increasing competitiveness of the arena, may be exaggerated.

Medicare's PPS constitutes a stage in the evolution of a more comprehensive prospective payment system. On the one hand, more thought is being given to extending the PPS approach to other services such as nursing home payment and inpatient physician services. On the other hand, serious efforts are being made to enroll the elderly into capitated arrangements, such as health maintenance organizations (HMOs), in which the health entity assumes the risks of unanticipated costs. PPS, as it now operates, is simply a tool to control payments. We can anticipate increased efforts to refine diagnosis-related groups (DRGs) to control for complexity of care. Also, we can expect reduced payments as economic pressures in the program increase and better hospital performance data that justify modifications become available.

Hospital and physician reimbursement policies reflect the need to control program costs and, it is hoped, to encourage efficiency, but processes of decisionmaking within the hospital remain uncertian. It is not obvious that constraints result in wise decisions or that managers in hospitals have the authority to constrain physician behavior constructively. With the increased availability of physicians, managers have more options, yet their dependence on physicians' patients in a highly competitive situation has countervailing influences. We need a much better, more detailed understanding of how decisions are worked out in this context. Peer Review Organizations and other regulatory authorities, and the rapidity of change, add to the reasons to anticipate major gaps between theory about the internal responses of hospitals and reality.

Strategies for Long-Term Care

In the absence of a national strategy for long-term care, and the exclusion of long-term services from Medicare coverage, Medicaid, by default, constitutes our national long-term care program, financing approximately half of national nursing home expenditures. The cost of long-term care taxes the resources of most families, and typically eldelry entrants to nursing homes on their own resources spend down until they reach elgibility for Medicaid. In the case of a family unit, however, the patient's elderly spouse is commonly forced into poverty before eligibility is reached, a situation that shocks the conscience of the public. The problems of building a long-term care constituency are exacerbated by the common belief among the public that Medicare provides needed protection. Four-fifths of members surveyed by the American Association of Retired Persons, who thought they might require long-term care in the future, believed that all or most of the costs were covered by Medicare or private insurance.

Community-based care. The goal is to develop an appropriate strategy for financing long-term care within a framework that enhances continued participation and function in the community to the greatest extent possible, and reinforces the informal care and supports that currently exist. When home care is no longer feasible because of mental confusion, incontinence, and extreme disability, and when the burdens on caretakers become too large, we seek a competent and caring institutional environment.

Considerable consensus exists on goals, but the enormous potential costs of long-term care give most policymakers reason to pause. More attention is now being given to the potential of long-term care insurance and community organizational structures that can bring together and coordinate a broader range of care needed by the frail elderly.[15] The current social health maintenance organization (SHMO) demonstrations supported by the Health Care Financing Administration (HCFA) should provide useful information on the viability of this approach.

Intuitively, it seems plausible that if we appropriately organize home and community services for the elderly, we should be able to provide high-quality care at a cost comparable to or less than that of institutional care. But what seems inituitively plausible is not necessarily true, and we have much to learn about how better to target individuals truly at risk of institutionalization who can, with appropriate services, remain in the community.[16] Moreover, when individuals are sufficiently debilitated and confused, and require sophisticated services and high levels of supervision, institutional care may be the less expensive alternative. Similarly, the burden on caretakers must be factored into consideration. In short, we need better concepts for triage that identify what patients and needs are most appropriately cared for in varying service contexts.

Cost per person must be differentiated from aggregate costs for populations. Most elderly hang on in the community as long as possible. But an attractive community/home care benefit brings new clients, who contribute to a higher aggregate cost. Such benefits often become complements rather than substitutes. These new clients who are attracted to community care benefits are in need but less disabled than those at high risk of institutionalization. Patients with such characteristics who enter nursing homes frequently return to their own homes after a relatively short stay.[17] Thus, while community care may be preferable, it must be justified on the basis of community values and quality of care, and not as a cost-saving alternative.

Eligibility screening. If long-term care needs are to be met by a broader set of options than now exists, and at tolerable cost, then screening for elgibility for services must be an important component of any program. Sophisticated evaluation is essential, but screening costs can be expensive because those at risk are a small proportion of the frail. The preservation of informal supports is extremely important, but can be undermined if programming strategy is not mindful of the extent to which community sustenance depends on this hidden system of care. Incentives can reinforce and strengthen these informal networks by helping reduce burdens on caretakers and providing respite opportunities.

Sources of funding. If long-term care financing is to be responsive to the evolving need, then various sources of funding will be necessary. Future cohorts of elderly will have more resources in the form of pensions and other assets, and there is growing interest in such mechanisms as long-term care insurance, long-term care individual retirement accounts (IRAs), and reverse mortgages. Structuring a combination of these mechanisms, along with direct governmental support, is a complex endeavor involving a variety of questions for which good data are not easily available. Despite strong constraints on the long-term care sector, it has grown rapidly. Nursing home care increased from less than 2 percent to 9 percent of personal health care costs, between 1950 and 1983, with estimated expenditures of $35 billion in 1985.[18] Approximately 46 percent of expenditures come from public sources, with more than two-thirds from federal programs, primarily Medicaid. Long-term care services provided in the community and home are difficult to disaggregate from other health and social services in the community, but still constitute a small fraction of long-term care expenditures.

The dilemma faced by both public and private programs is how to expand long-term care services and better respond to community needs within acceptable economic limits without unleasing a high level of demand that exceeds the capacity or willingness of the community to pay. The problem is somewhat different for the affluent with assets, who might buy long-term care protection through private insurance, life care community residence, or other means, and the majority of elderly with limited assets who inevitably must depend on public programs. But, in either case, mechanisms must be in place to assure the viability of economic arrangements.

Rationing services. The strategies for rationing long-term care services are comparable to those used in the health sector generally. But because they involve skills and services that can be more easily met by informal sources such as homemaker assistance, chore services, meal preparation, transportation, and some home nursing services, the potential for shifting informal costs to programs is large. This presents difficult actuarial problems and encourages restrictive insurance options. Any adequate long-term care provision probably would require considerable cost sharing not only to reduce the obligation of third-party payers but also to establish a threshold beyong which persons who have alternative informal sources are less likely to seek benefits. Deductibles and coinsurance must not be so large as to inhibit the provision of essential services, but must be large enough so that there is no obvious incentive for family and friends to shift responsibility. This is an exceedingly difficult issue because objectives are in conflict and defining the proper balance of incentives is fraught with uncertainty.

An alternative or complement is to have case managers make decisions about benefits through the application of screening criteria. Such judgments about community and home services are far more uncertain than are decisions about nursing home admission, and much effort is needed in perfecting such criteria. The task is more difficult than decisions about necessary medical services, and requires judgments not only about what persons can do on their own, but also about the strengths and capabilities of their families and extended informal networks. This task, thus, is inextricably associated with complex personal and social values, norms about the obligations of the family, notions about what friends owe to one another, and the like. The area thus involves difficult ethical issues and assessments and is highly vulnerable to the excesses of discretion and inequitable outcomes. We should learn something about this process from the ongoing SHMO demonstrations, but the inherent problems are not easily solved. Discretion can be contained to some degree by specifying in detail the conditions under which varying types of services would be available. The exercise might be informative for those managing such a program, but it is difficult to visualize how the complex judgments involved can be prescribed sensibly.

Long-Term Care and Society

Long-term care is a social process, more so than is the provision of traditional health care as we usually view it. It depends to a larger degree on notions of community, networks of reciprocal obligation, and competing and changing values among the generations. In a narrow sense, the challenge of long-term care is in developing a financial structure that assures that the pressing needs of the sick and disabled elderly will be met. But any viable financing structure must be developed within a meaningful community context and consistent with efforts to sustain voluntary efforts.

For those elderly who lose their capacity for social relations as a consequence of Alzheimer's disease, stroke, or other devastating infirmities, the major challenge is financing the care that informal sources are unable to give without insufferable burden. But for many disabled elderly, the challenge is to sustain their function and participation and to maintain their sense of self and personal dignity. Thus, the source of care, and how it is provided, is no small issue. If the elderly view the substitute of formal care for informal services, whatever the quality, as a betrayal by loved ones and the community, the results will be deficient.

While most elderly prefer community to institutional care, their desire to avoid financial dependence on their children is highly prevalent and has increased over time.[19] Thus, it seems plausible that as the population comtemplates increased longevity and the prospects of aging, and becomes better educated about the inadequacy of long-term care protections, it will be more prepared to invest in protecting against the risks of incapacity and dependence. Approximately one in five of those over sixty-five now require nursing home care, but as the demographic composition of the elderly group changes, needs for care will increase. If the risk is sufficiently spread over the population, the burden on any individual need not be excessive.

Possibilities for long-term care coverage range from mandatory program participation through an extension of the social security system to private long-term insurance embodied in employee benefit plans or purchased on the open market. To the extent that such coverage is not mandatory, the usual problems of marketing, risk selection, and public education are major concerns, and leave open the question of how we care for those who lack the necessary prudence or who play the odds in addition to those who lack the economic resources to protect themselves.

Ironically, our society has the facilities, the capacity, and the human resources necessary to ensure our population decent care. With our abundant institutional capacity, our growing corps of physicians, nurses, social workers, and other health professionals, and our strong tradition of volunteerism, we have the necessary components for a comprehensive and vital response to the challenges. The growing elderly population itself is a major resource that can contribute immensely with creative organization. Many retired persons seek fruitful opportunities to serve others and to maintain their sense of meaningful participation. We have yet to develop appropriate organizational contexts on a wide scale that can utilize this rich reservoir of productive activity.

Long-term care must be seen not simply as a medical or custodial problem, or solely within the larger context of providing social services. Effective long-term care requires major initiatives in social organization and the modification of community culture along with the health and social services that those with impaired function require. It is through a balance of increased public entitlements, nongovernmental initiatives, enhanced voluntary efforts, and individual responsibility of the elderly and their families that we have an opportunity to provide not only the critical services that a decent society demands, but also a framework that gives the later years meaning and dignity.

REFERENCES

1. D Mechanic, From Advocacy to Allocation: The Evolving American Health Care System (New York:Free Press 1986).
2. JS Seigel and CM Taeuber, "Demographic Perspectives on the Long-Lived Society," Daedalus 1986, 115:82.
3. Office of Technology Assessment, Technology and Aging in America, OTA-BA-264 (Washington, DC: US Congress OTA 1985):42.
4. Siegel and Taeuber, "Demographic Perspectives on the Long-Lived Society,' 90.
5. E Schneider and J Brody, "Aging, Natural Death, and the Compression of Morbidity: Another View,' The New England Journal of Medicine 1984, 309:854-855.
6. L Verbrugge, "Longer Life But Worsening Health Trends in Health and Mortality of Middle-Aged and Older Persons," Milbank Memorial Fund Quarterly 1984, 62:475-519.
7. R Suzman and MW Riley, eds. "Special Issue: The Oldest Old," Milbank Memorial Fund Quarterly 1985, 63.
8. K Davis, "Aging and the Health Care System: Economic and Structural Issues." Daedalus 1986, 115:227-246.
9. A Enthoven, "Health Tax Policy Mismatch," Health Affairs Winter 1985, 5-14.
10. RH Brook et al. "Does Free Care Improve Adults' Health?: Results from a Randomized Controlled Trial," The New England Journal of Medicine 1983, 309:1426-1434.
11. S Crystal, "Measuring Income and Inequality Among the Elderly," The Gerontologist 1986, 26:56-59.
12. Davis, "Aging and the Health Care System," 231.
13. RH Arnett III et al. "Health Spending Trends in the 1980s: Adjusting to Financial Incentives," Health Care Financing Review 1985, 6:1-25.
14. Office of Technology Assessment, Payment for Physician Services: Strategies for Medicare, OTA-H-294 (Washington, DC: US Congress OTA 1986).
15. M Meiners, "Long-Term Care Insurance: Agenda for Further Research and Development," Generations 1986, 9:39-42.
16. W Weissert, "Seven Reasons Why It Is so Difficult to Make Community Based Long-Term Care Cost-Effective," Health Services Research 1985, 20:423-433.
17. Ibid.
18. Arnett et al. "Health Spending Trends in the 1980s," 20.
19. S Crystal, America's Old Age Crisis: Public Policy and the Two Worlds of Aging (New York: Basic Books 1982).

Investigation of a Cluster of Appendicitis Cases—Texas

CENTERS FOR DISEASE CONTROL

Although appendectomy for acute appendicitis is the most commonly performed emergency abdominal surgery in the United States,[1] epidemiologic investigations to determine risk factors for and causes of this condition are limited. A 1984 investigation of a cluster of cases of appendicitis in Texas illustrates how the epidemiologic approach may be used to address this problem.

In April 1984, the Texas Department of Health learned of an apparent cluster of appendicitis cases in a town of 8,000 inhabitants. In the resulting investigation, 13 patients with histologically confirmed appendicitis during the period February-April 1984 were identified. During the same time period in the previous year, there had been two cases. Eleven of the 13 patients with appendicitis (85%) were males; in 1983, three of seven patients (43%) were males. The median age of patients in 1984 was 13 years, compared with 20 years in 1983. Eight of the 13 patients experienced their first episode of severe abdominal pain during a 15-day period in February (Poisson distribution, $p < 0.01$).

Initially, five physicians examined the various patients and diagnosed their illnesses. A surgeon from a neighboring community performed 12 of the 13 appendectomies. Seven patients (54%) had fecaliths, and four (31%) had perforated appendices at the time of surgery. *Salmonella* was isolated from one patient's appendix. Cultures for *Campylobacter* and *Yersinia* and viral studies were not performed.

Eleven of the patients attended the town's five schools. The absentee rate for their respective grades peaked during a 1-week period in late January (Figure 1). The school nurse reported that both acute upper respiratory tract and gastrointestinal illnesses occurred simultaneously in January and February. The cluster of appendicitis occurred 2 to 3 weeks after the majority of illnesses in the schools.

A case-control study was conducted for the school-aged patients. Two controls per patient were chosen at random from each patient's grade roster. Ninety-one percent of the patients, and 77% of the controls were absent at least 1 day between January 15 and February 12, 1984. Similar percentages of patients and controls had experienced antecedent symptoms of upper respiratory tract illness (36% compared with 27%), while 36% of patients and only 9% of controls reported antecedent symptoms of gastrointestinal illness.

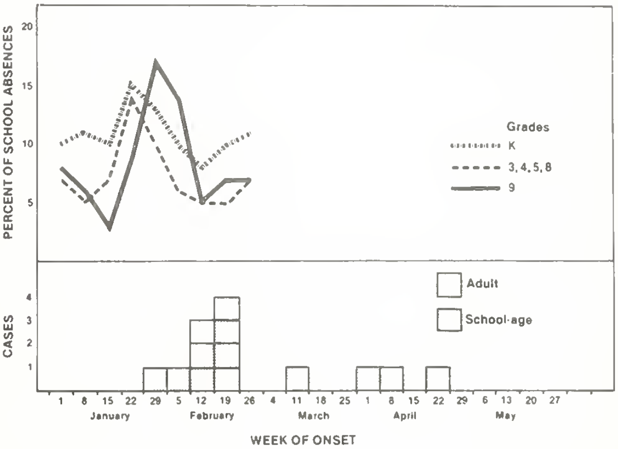


Figure 1

School absences and reported cases of appendicitis, by week of onset—Texas, 1984

A survey including questions on exposure to 41 food items was conducted. Statistical associations were detected between appendicitis and some food exposures. However, studies demonstrating a specific causal role for these foods have not been conducted.

Abstracted with permission from: Martin DL, Gustafson TL. A cluster of true appendicitis cases. Am J Surg 1985, 150:554-7. Reported by: D Martin, C Alexander, MD, State Epidemiologist, Texas Dept of Health. Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Symptoms that mimic appendicitis can be caused by several enteric pathogens, including *Yersinia enterocolitica*,[2] *Yersinia pseudotuberculosis*,[3] and *Campylobacter jejuni*.[4] Although specific cultures were not performed to exclude these agents in the Texas cluster, the absence of mesenteric adenitis and concurrent gastro-

---

Morbidity and Mortality Weekly Reports, Vol. 36, Nos. 13 and 22, 1987.

enteritis suggests that these agents were not the cause of the cluster. The criteria for the pathologic diagnosis of early appendicitis are somewhat subjective,[5] and the particular criteria used were not specified in this report. However, the high perforation rate combined with the pathologic diagnoses strongly suggest that the cases in this cluster were true appendicitis.

Appendicitis has long been presumed to be related to mechanical obstruction of the appendix.[6] However, appendiceal obstruction can be difficult to demonstrate,[7] and increasing evidence points to external causes. Since appendicitis appears to be rare in industrially undeveloped countries, Burkitt advanced the hypothesis that diets high in fiber protect against appendicitis.[8] In two case-control studies, controls had slightly higher fiber intake than patients, although the possible protective effect of a high-fiber diet is not consistent with long-term trends in the United Kingdom.[9-11]

In a recent case-control study, siblings (but not parents) of children with appendicitis were 10 times more likely than siblings of control children to have had appendicitis themselves. This difference suggests that illness may have been attributable to a common environmental risk factor.[12] The cluster reported here supports the hypothesis that environmental factors may contribute to appendicitis. The etiology may be related to exposures to specific foods, infectious agents, or toxins, alone or in combination with general dietary factors.[13] It is also possible that the associations reported in this cluster occurred by chance because of the large number of comparisons in the study. However, they provide useful and testable hypotheses, and the potential roles of antecedent illness and certain foods should be examined further.

Clusters of appendicitis offer a unique opportunity to identify possible risk factors and to search for precipitating infectious agents. In the event of such clusters, clinicians should perform cultures for pathogens causing the pseudoappendiceal syndrome and should confirm the diagnosis using explicit pathologic case definitions. State health departments are encouraged to report such clusters to the Enteric Diseases Branch, Center for Infectious Diseases, CDC, which could advise or assist in investigations.

REFERENCES

1. Cooperman M. Complications of appendectomy. Surg Clin North Am 1983, 63:1233-47.
2. Jepsen OB, Korner B, Lauritsen KB, et al: *Yersinia enterocolitica* infection in patients with acute surgical abdominal disease: a prospective study. Scand J Infect Dis 1976, 8:189-94.
3. Tertti R, Granfors K, Lehtonen O-P, et al. An outbreak of *Yersinia pseudotuberculosis* infection. J Infect Dis 1984, 149:245-50.
4. Blaser MJ, Berkowitz ID, LaForce FM, Cravens J, Reller LB, Wang WL. *Campylobacter enteritis:* clinical and epidemiologic features. Ann Intern Med 1979, 91:179-85.
5. Klein HZ, Coulson WF. The appendix. In: Coulson WF, ed. Surgical pathology. Philadelphia: Lippincott, 1978:160-3.
6. Wangensteen OH, Dennis C. Experimental proof of obstructive origin of appendicitis in man. Ann Surg 1939, 110:629-47.
7. Arnbjornsson E, Bengmark S. Role of obstruction in the pathogenesis of acute appendicitis. Am J Surg 1984, 147:390-2.
8. Burkitt DP. The aetiology of appendicitis. Br J Surg 1971, 58:695-9.
9. Arnbjornsson E. Acute appendicitis and dietary fiber. Arch Surg 1983, 118:868-70.
10. Brender JD, Weiss NS, Koepsell TD, Marcuse EK. Fiber intake and childhood appendicitis. Am J Public Health 1985, 75:399-400.
11. Barker DJP. Acute appendicitis and dietary fibre: an alternative hypothesis. Br Med J 1985, 290:1125-7.
12. Brender JD, Marcuse EK, Weiss S, Koepsell TD. Is childhood appendicitis familial? Am J Dis Child 1985, 139:338-40.
13. Environmental Epidemiology Unit, Medical Research Council. The aetiology of acute appendicitis (scientific no 7): proceedings of a meeting held on May 22, 1986. Southhampton, England: Medical Research Council, 1986.

Update on Influenza Activity Worldwide and World Health Organization and United States Recommendations for Influenza Vaccine Composition for the 1987-1988 Season

During February or March each year, the World Health Organization (WHO) summarizes available data on recently isolated influenza viruses around the world and issues recommendations for vaccine composition. The WHO reports[1,2] and the U.S. recommendations for composition of the 1987-1988 influenza vaccine are summarized below.

Influenza—Worldwide

From September 1986 through February 1987, influenza A(H1N1) viruses predominated and, in most countries, were the only type of influenza virus isolated. As in previous epidemics since 1977, influenza A(H1N1) outbreaks occurred mainly among children and young adults. Few influenza A(H3N2) or influenza B viruses have been isolated.

Influenza A(H1N1). In the Americas, localized outbreaks occurred in the United States in October and November 1986. Influenza activity increased markedly in the United States in December, and, by mid-February, the virus had been isolated from patients in 49 states and the District of Columbia. Canada also reported activity from October through January. In Jamaica, outbreaks were serologically confirmed in both October and November. Brazil reported a single case in October.

In Asia, widespread outbreak activity was reported in the Democratic People's Republic of Korea during October and November and in Japan during November and December. China reported sporadically occurring cases from November through January, and Hong Kong reported them in December. In the Middle East, influenza A(H1N1) virus was isolated during outbreaks in the Islamic Republic of Iran in November and in Isreal during November and December.

In Europe, localized outbreaks occurred in the United Kingdom in September and October, with continued activity through January. In both the German Democratic Republic and the USSR, outbreak activity was widespread during November and declined during December. Czechoslovakia, Hungary, Poland, and Yugoslavia also reported widespread influenza activity in December. Elsewhere in Europe (Denmark, the Federal Republic of Germany, Finland, France, Italy, the Netherlands, Norway, Romania, Spain, Sweden, and Switzerland), there was activity between December and February.

Influenza A(H3N2). Influenza A(H3N2) virus was isolated along with influenza A(H1N1) during an outbreak in the Democratic People's Republic of Korea. The virus was also isolated during an outbreak in Ecuador in November. Otherwise, A(H3N2) was detected only in sporadically occurring cases in Canada, China, Italy, Romania, Tunisia, the United States, and the USSR.

Influenza B. Outbreaks of influenza B were reported in Panama in September and October and in Singapore in December. Sporadically occurring cases were also detected in Canada, Chile, the Federal Republic of Germany, Hong Kong, India, Senegal, Singapore, Spain, Sweden, Taiwan, the United Kingdom, the United States, and the USSR.

Antigenic Analysis of Recent Isolates

Influenza A(H1N1) viruses collected from many parts of the world during the 1986-1987 season have been antigenically characterized. Virtually all of them were indistinguishable from the A/Taiwan/1/86-like strains isolated in Asia early in 1986.[3] Influenza B viruses, which were isolated infrequently during the 1986-1987 season, were antigenically heterogeneous. However, all were closely related to B/Ann Arbor/1/86.[4]

The influenza A(H3N2) viruses isolated from the outbreaks in all parts of the world during the 1985-1986 season were antigenically heterogeneous. About two-thirds differed from A/Mississippi/1/85 (H3N2), which was included in the 1986-1987 U.S. trivalent influenza vaccine. More than 25% of the A(H3N2) isolates characterized in the United States during the 1985-1986 season were antigenically similar to the A(H3N2) variant, A/Stockholm/8/85. Sera from recipients of the 1986-1987 trivalent vaccine were tested for antibody against both A/Mississippi/1/85 and A/Stockholm/8/85 antigens by hemagglutination inhibition. For both young adults and nursing home residents who had received the trivalent vaccine, the geometric mean titers were nearly threefold lower to the A/Stockholm/8/85 virus than to the homologous A/Mississippi/1/85 virus. Furthermore, for the nursing home residents, 38% of the post-vaccination sera had titers that were greater than or equal to 40 to A/Stockholm/8/85, whereas 69% had titers greater than or equal to 40 to A/Mississippi/1/85.

Very few A(H3N2) viruses have been isolated during the 1986-1987 season; however, several appear similar to the A/Stockholm/8/85 variant. The 1986-1987 variant, A/Leningrad/360/86, an egg isolate suitable for vaccine production, appears closely related to A/Stockholm/8/85. These reference strains are poorly inhibited by ferret serum to the A/Bangkok/1/79 strain, used in influenza vaccines during the period 1980-1985. They are also inhibited at significantly reduced titers (compared to the homologous titer) by ferret antiserum to A/Mississippi/1/85. However, ferret antisera to both A/Stockholm/8/85 and A/Leningrad/360/86 inhibit A/Mississippi/1/85.

Recommendations for the Composition of Influenza Virus Vaccines

Because of these antigenic variations and the continued isolation of viruses resembling A/Stockholm/8/85, WHO recommends that influenza vaccines for use during the 1986-1987 season contain a representative of this variant in place of A/Mississippi/1/85.

The above findings were discussed at a WHO meeting in February. The Public Health Service Vaccine Advisory Panel (PHSVAP) met during the same period to review the data regarding antigenic variations of virus isolates. Consistent with WHO recommendations, the PHS recommends that influenza vaccines for use in the 1987-1988 season be trivalent and contain the following antigens:

A/Taiwan/1/86(H1N1)-like antigen

B/Ann Arbor/1/86-like antigen

A/Leningrad/360/86(H3N2)-like antigen

Recommendations of the Immunization Practices Advisory Committee regarding dosage and schedule of the vaccine will be published in the MMWR later this spring.

Reported by: Influenza Research Center, Baylor College of Medicine, Houston, Texas. FL Ruben, MD, B Heisler, P Fallon, Montefiore Hospital, University of Pittsburgh School of Medicine, Pennsylvania. National Influenza Centers, Microbiology and Immunology Support Svcs, WHO, Geneva. Div of Virology. Office of Biologics, Food and Drug Administration. WHO Collaborating Center for Influenza, Influenza BR, Div of Viral Diseases, Center for Infectious Diseases, CDC.

REFERENCES

1. World Health Organization. Recommended composition of influenza virus vaccines for use in the 1987-1988 season. Wkly Epidem Rec 1987, 62:54-7.

2. World Health Organization. Recommended composition of influenza vaccine for use in the 1987-1988 season—a supplementary statement. Wkly Epidem Rec 1987, 62:90.

3. CDC. Antigen variation of recent influenza A(H1N1) viruses. MMWR 1986, 35:510-2.

4. World Health Organization. Recommended composition of influenza virus vaccines for use in the 1986-1987 season. Wkly Epidem Rec 1986, 61:61-4.

NOTICE

ProMed Systems, Inc. is proud to announce two significant developments which will benefit Connecticut medical providers:

1. ProMed's electronic claim submission network has been expanded to include the following insurance carriers:
   - Blue Cross & Blue Shield of Connecticut
   - Medicare (Part B - Travelers)
   - Constitution Health Network
2. ProMed has a new product, the Electronic Claim Submission System. Key features and benefits of the system are:
   - Available on a lease basis for $175.00 per month which includes all required hardware and software ($75.00 per month for software only).
   - Patient demographic information is retained by the system and need only be entered once.
   - System provides electronic claim submission to the above carriers and will print HCFA 1500 claim forms where that is the requirement.

Connecticut's Source
for Practice Management and Claim Submission Systems.

Call Bob Seekamp, Director of Marketing
at 1-800-922-3385 for additional information.

ProMed
SYSTEMS INCORPORATED

221 Whitney Avenue
New Haven, CT 06511

A subsidiary of:

Blue Cross
Blue Shield
of Connecticut

DRUG INFORMATION UPDATE: HARTFORD HOSPITAL

Esmolol

BARRY E. BLESKE, PHARM. D.

Introduction

Esmolol hydrochloride (Brevibloc®, Dupont Critical Care, Inc.) is a new short acting intravenous beta-1 selective adrenergic receptor blocking agent. Current FDA approved indications for its use include the control of ventricular rate in patients with atrial fibrillation or atrial flutter in perioperative, postoperative, or other emergent circumstances. Esmolol is also indicated for the treatment of noncompensatory sinus tachycardia when treatment is warranted and may be effective in a variety of other clinical situations where short term beta blockade is clinically indicated.

Pharmacology and Pharmacokinetics

Esmolol is a cardioselective (beta-1) adrenergic receptor blocking agent[1-3] with potency that has been found to be approximately 1/30th to 1/70th that of propranolol.[1,3-5] In a recent clinical study intravenous propranolol 3-6 mg was as effective in reducing heart rate or converting supraventricular tachycardia as esmolol in the dosage range of 50 to 300 ug/kg/min over a 30 minute titration range.[6] Esmolol does not possess any alpha blocking or intrinsic sympathomimetic activity.[1-2] Direct cardiac and local anesthetic effects are seen only at concentrations much greater than required for beta blockade.[1]

Electrophysiologic effects include prolong sinus cycle length and AV nodal conduction with no change in PR, QRS or QT intervals.[2] These results are comparable to other beta blockers.[1]

Hemodynamic effects of esmolol include significant decreases in heart rate, systolic blood pressure, and left ventricular ejection fraction. These findings are similar to those found for propranolol.[7] Also, these effects are rapidly terminated (10-30 minutes) after the infusion has been stopped.[1,6-8]

The distribution half-life of esmolol is two minutes with a volume of distribution equal to 3.4 l/kg. The elimination half-life of esmolol is approximately nine minutes with total clearance averaging 285 ml/min/kg.[9] Esmolol is rapidly hydrolized by blood esterases into an acid metabolite and methanol.[5] The metabolite is eliminated renally with a half-life of 3.7 hours and is approximately 1/1500th less potent than esmolol.[5,9] Methanol concentrations after esmolol infusion have been found to be within the concentrations normally found endogenously.[4]

The onset of action of esmolol is rapid with a steady-state level of blockade being reached in approximately five minutes after a loading infusion.[2,3,10] As serum concentrations increase, the decrease in heart rate and blood pressure tend to be the greatest.[9] However, if there is significant hypotension, a corresponding decrease in heart rate may not be apparent secondary to reflex mechanisms.[3]

Clinical Efficacy

A multicenter, baseline-controlled, open label study to determine efficacy of esmolol in 160 patients with supraventricular tachyarrhythmias was performed in doses ranging from 25 to 300 ug/kg/min.[13] Seventy-nine percent of the patients exhibited a therapeutic response. Therapeutic response was defined to be a greater than or equal to a 15% reduction in the average baseline heart rate or conversion to normal sinus rhythm. The cumulative percentage responders increased significantly up to a dose of 200 ug/kg/min but not up to a dose of 300 ug/kg/min. The mean therapeutic dose of esmolol was 97.2±5.5 ug/kg/min. There was a significantly higher frequency of responders in patients with atrial fibrillation, paroxysmal supraventricular tachycardia, and sinus tachycardia than in patients with atrial flutter. Postoperative patients also exhibited a higher frequency of therapeutic response than nonpostoperative patients.

In another study the efficacy of intravenous esmolol vs intravenous propranolol was compared in 127 patients.[14] Therapeutic response was achieved in 72% of esmolol and 69% of propranolol patients. There was no signficant difference between the two groups. The average dose of esmolol in responders was 115±11 ug/kg/min. It appears that esmolol is as effective as propranolol for the treatment of supraventricular tachyarrhythmias.

BARRY BLESKE, Pharm. D., Post-doctoral Pharmacy Fellow at Hartford Hospital and Assistant Clinical Professor, University of Connecticut School of Pharmacy, Storrs, CT.

This series on Drug Information Update from the Hartford Hospital is provided by Charles H. Nightingale, Ph.D., Director of Pharmacy Services, Hartford Hospital, Hartford, CT.

Editors: Moses Sing Sum Chow, Pharm. D. and Robert A. Quercia, M.S., R.Ph.

Esmolol has also been shown in a small number of patients to be effective in the treatment of hypertension after cardiac surgery.[15] Furthermore, esmolol has been shown to be effective in lowering heart rate and arterial pressure in patients with acute myocardial ischemia.[16] Also, tachycardia that is normally seen during induction of anesthesia, laryngoscopy, and endotracheal intubation is attenuated by esmolol.[17]

Adverse Effects

The most common adverse effect experienced with esmolol is hypotension (20-50% of patients treated for supraventricular tachycardia and other clinical conditions). In four major clinical studies in patients with supraventricular tachyarrhythmias the incidence of hypotension was 13 to 39%.[18] The incidence of hypotension appears to increase with dose. Therefore, careful titration of esmolol is needed to prevent hypotension in these patients. Other common adverse effects include diaphoresis (10%), nausea (7%), dizziness (3%), and somnolence (3%), with bronchospasm, wheezing, bradycardia, pulmonary edema, and heart block reported in less than 1% of the patients respectively. Another common adverse effect is inflammation and induration at the infusion site (8% of the patients). This adverse effect may be minimized by rotation of IV sites and avoiding concentrations greater than 10mg/ml.

Drug Interactions

Drug interactions between digoxin, morphine, warfarin and esmolol have been reported to occur in normal volunteers[19] It has been shown that esmolol may increase serum digoxin concentrations by 9.6 to 19.2%. In contrast, morphine and warfarin may increase esmolol serum concentrations. These pharmacokinetic interactions does not appear to be clinically significant. However, because the data are limited caution should be exercised when administering esmolol to patients on digoxin, morphine, or warfarin.

Another drug interaction is the prolongation of succinylcholine duration of neuromuscular blockade from five minutes to eight minutes.[18] The clinical significance of this interaction is unknown.

Dosing

Esmolol is compatible and stable for at least 24 hours in dextrose (5%), sodium chloride (0.45, 0.9%), and lactated ringers solution. Esmolol *must* be diluted to a concentration no greater than 10mg/ml to avoid venous irritation. Treatment for supraventricular tachycardia is initiated by administering a loading dose of 500 ug/kg/min for one minute followed by a 50 ug/kg/min maintenance infusion. If a therapeutic response is not observed in five minutes repeat the same loading procedure followed by a 50 ug/kg/min increase in the maintenance infusion. This procedure may be repeated until therapeutic response or a 300 ug/kg/min maintenance infusion has been reached. It should be noted that maintenance dosages above 200 ug/kg/min have not been shown to significantly increase therapeutic response. However, a few patients may still respond to this higher dose. As the desired heart rate or blood pressure is approached the loading dose may be omitted followed by a lower increase in the maintenance infusion. This may provide for safer titration. Furthermore, increasing the interval between titration periods may also prove safer. The use of esmolol for up to 24 hours has been well documented; however, there are limited data from 24 to 48 hours.[18] It should be noted that the optimal dosage for any other indications other than supraventricular tachycardia has not been determined.

After a patient is clinically stable, conversion from intravenous esmolol to another agent may be warranted. A recommended guideline for this transition is listed below.[18] The labeling instructions for each drug should be carefully considered before selecting an agent to use.

Propranolol hydrochloride	10-20mg q4-6hours
Digoxin	0.125-0.5mg q6h (po or IV)
Verapamil	80mg q6h

Thirty minutes after the first dose of the alternative agent the infusion rate of esmolol can be decresed by 50%. If after the second dose satisfactory control is maintained for the first hour the esmolol infusion can be discontinued.[18]

Dosage adjustments appear not to be required for patients with hepatic cirrhosis.[11] Patients with impaired renal function (including patients on hemodialysis and peritoneal dialysis) should not require adjustments of esmolol's dosage during short term administration;[12] however, there is limited information available.

Cost

Esmolol is supplied as a 10ml ampule (250mg/ml) at a cost to the hospital of $22.20.

Conclusion

Esmolol (Brevibloc®) is a new intravenous cardioselective beta blocker indicated for the treatment of supraventricular tachyarrhythmias. Advantages of this drug over other beta blockers includes rapid titration and because of its short half-life quick termination of any adverse effects. Esmolol should prove to be a safe and effective beta blocking agent especially in the critically ill patient where rapid titration and termination of beta blocking effects are required.

REFERENCES

1. Gorczyniski RJ, Shaffer JE, Lee RJ. Pharmacology of ASL-8052, a novel B-adrenergic receptor antagonist with an ultrashort duration of action. J Cardiovasc Pharmacol 1983, 5:668-77.
2. Greenspan AM, Spielman SR, Horowitz LN, et al. Electrophysiology of esmolol. Am J Cardiol 1985, 56:19F-26F.
3. Reilly CS, Wood M, Koshakji RP, Wood AJJ. Ultra-short-acting beta-blockage: A comparison with conventional beta-blockade. Clin Pharmacol Ther 1985, 38:579-85.
4. Zaroslinski J, Borgman RJ, O'Donnell JP, et al. Ultra-short acting beta blockers: A proposal for the treatment of the critically ill patient. Life Sci 1982, 31:899-907.
5. Gorczynski RJ. Basic pharmacology of esmolol. Am J Cardiol 1985, 56:3F-13F.

6. Morganroth J, Horowitz LN, Anderson J, et al. Comparative efficacy and tolerance of esmolol to propranolol for control of supraventricular tachyarrhythmia. Am J Cardiol 1985, 56:33F-9F.

7. Iskandrian AS, Hakki A, Laddu A, et al. Effects of intravenous infusion of esmolol and propranolol on biventricular performance at rest and during exercise as assessed by quantitative radionuclide angiography. Am J Cardiol 1985, 55:1287-92.

8. Iskandrian AS, Bemis CE, Hakki A, et al. Effects of esmolol on patients with left ventricular dysfunction. J Am Coll Cardiol 1986, 8:225-31.

9. Sum CY, Yacobi A, Kartzinel R, et al. Kinetics of esmolol, an ultrashort-acting beta blocker, and of its majormetabolite. Clin Pharmacol Ther 1983, 34:427-34.

10. Reynolds RD, Gorczynski RJ, Quon CY. Pharmacology and pharmacokinetics of esmolol. J Clin Pharmacol 1986, 26:A3-A14.

11. Rollins D, et al. Pharmacokinetics of esmolol in hepatic disease. Clin Pharmacol Ther 1986, 39:224.

12. Flaherty J, Wong B, LaFollette G, et al. Kinetics of esmolol and ASL-8123 in normals and in renal failure. Clin Pharmacol Ther 1986, 39:192.

13. Esmolol Research Group. Intravenous esmolol for the treatment of supraventricular tachyarrhythmia: Results of multicenter, baseline-controlled safety and efficacy study in 160 patients. Am Heart J 1986, 112:498-505.

14. Esmolol Research Group. Efficacy and safety of esmolol vs propranolol in the treatment of supraventricular tachyarrhythmias: A multicenter double-blind clinical trial. Am Heart J 1985, 110:913-22.

15. Gray RJ, Bateman TM, Czer LS, et al. Use of esmolol in hypertension after cardiac surgery. Am J Cardiol 1985, 56:49F-56F.

16. Kirshenbaum JM, Kloner RA, Antman EM, Braunwald E. Use of an ultra short-acting B-blocker in patients with acute myocardial ischemia. Circulation 1985, 72:873-80.

17. Murthy VS, Hwang TF, Sandage BW, Laddu AR. Esmolol and the adrenergic response to perioperative stimuli. J Clin Pharmacol 1986, 26:A27-A35.

18. Esmolol Technical Monograph and Formulary Information. DuPont Critical Care, Inc. 1987.

19. Lowenthal DT, Porter RS, Saris SD, et al. Clinical Pharmacology, Pharmacodynamics and Interactions with Esmolol. Am J Cardiol 1985, 56:14F-18F.

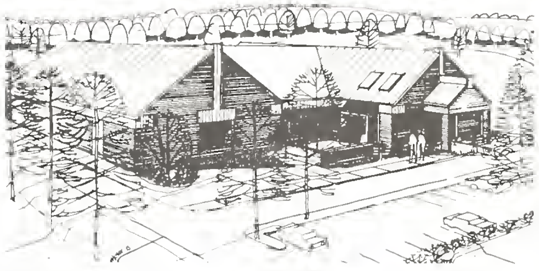
Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:
- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:
- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Médical) for Ophthalmology.
- CO2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

CNA's commitment to your malpractice protection goes a long way.

Malpractice insurance from CNA carries with it this important commitment: we will continue to provide quality malpractice protection for the long haul throughout the United States.

For over 30 years, CNA has lived up to this commitment by providing professionals with the best in malpractice protection. These years have been marked by stable, responsibly-priced programs attuned to professionals' changing needs.

This commitment can be seen in many other ways: CNA's programs include comprehensive coverage, local claim service, and meaningful loss control assistance. CNA also believes in vigorously defending against all frivolous lawsuits, and has established panels of defense attorneys that specialize in legal defense for malpractice cases. To make sure they continue to meet your needs, CNA maintains ongoing relationships with medical societies and individual physicians.

Learn how far CNA's commitment to your insurance protection can go.

A.A.W. Physicians Plan, Inc.
225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The CNA Physicians Protection Program is underwritten by Continental Casualty Company, one of the CNA Insurance Companies.

CNA
For All the Commitments You Make®

Verapamil for Hypertension

THE MEDICAL LETTER

Verapamil (*Calan* - Searle; *Isoptin* - Knoll), previously available only for treatment of cardiac arrhythmias and angina pectoris, recently became the first calcium-channel blocking agent to be marketed for treatment of hypertension in the USA. For this new indication, the drug is also available in a sustained-release formulation (*Calan SR; Isoptin SR)* that can be taken once a day.

MECHANISM OF ACTION—Verapamil dilates peripheral arterioles, decreasing peripheral resistance (afterload), usually without reflex tachycardia. It may also decrease cardiac contractility (C Spivack et al, Drugs, 25:154, 1983).

CLINICAL STUDIES—The old immediate-release formulation of verapamil (80 to 160 mg bid or tid) can lower blood pressure in patients with hypertension better than placebo (K Midtbø and O Hals, Curr Ther Res, 27:830, 1980; BA Gould et al, Circulation, 65:22, 1982) and about as effectively as beta-blockers, such as propranolol (*Inderal;* and others) or atenolol (*Tenormin*) (WH Frishman et al, Am J Cardiol, 50:1164, 1982; RS Hornung et al, Am J Cardiol, 57:93D, 1986; J Escudero et al, Am J Cardiol, 57:54D, 1986). In one controlled trial, verapamil was equally effective in 20 black and 40 white hypertensive patients, while propranolol was more effective in 37 white patients than in 21 blacks (LX Cubeddu et al, JAMA, 256:2214, Oct 24/31, 1986).

Sustained-release verapamil given once or twice daily was as effective as immediate-release verapamil in small trials in patients with mild to moderate hypertension (PK Zachariah et al, J Clin Hypertens, 3:133S, 1986; KA Midtbø et al, J Clin Hypertens, 3:125S, 1986). Verapamil can be given with a thiazide diuretic for an additive effect, but few studies are available on concurrent use with a beta-blocker or angiotensin-converting enzyme (ACE) inhibitor such as captopril (*Capoten*).

ADVERSE EFFECTS—Serious adverse reactions to verapamil are uncommon, but heart failure, hypotension, bradycardia and A-V block can occur, especially in patients with severe left ventricular dysfunction and sinus node or A-V conduction defects. More frequent adverse effects include constipation, which can be severe (RG Trohman et al, N Eng J Med, 314:1583, 1986), dizziness, nausea, edema, headache, and fatigue. Hepatic toxicity proven by rechallenge has been reported. Impotence has occurred in patients taking the drug. Verapamil's safety in pregnancy has not been determined; it is excreted in human milk and should not be taken by nursing mothers.

INTERACTIONS—Verapamil may increase the toxicity of digoxin, digitoxin, carbamazepine (*Tegretol*; and others), oral hypoglycemics, and possibly quinidine and theophyllines; increased neuromuscular blockade is possible with pancuronium or tubocurarine. Cardiac failure, A-V conduction disturbances, and sinus bradycardia may be more frequent with concurrent use of beta-blockers, and severe hypotension and bradycardia with concurrent bupivacaine (*Marcaine*) or halothane (*Fluothane*). Decreased lithium effects and lithium neurotoxicity have been reported when the drug was used with verapamil (WA Price and AJ Giannini, J Clin Pharmacol, 26:717, 1986). The effects of verapamil may be increased by cimetidine (*Tagamet*) and decreased by rifampin and possibly sulfinpyrazone (*Anturane*).

DOSAGE AND ADMINISTRATION— In clinical trials, the usual initial dosage of verapamil for treatment of hypertension was 80 mg tid. Sustained-release verapamil is available in 240-mg scored capsule-shaped tablets; the usual daily dose for treatment of hypertension is one tablet (240 mg) once daily in the morning, but small or elderly patients may need only half a tablet (120 mg) per day. If blood pressure does not respond to 240 mg, the dosage can be increased to 240 mg in the morning plus 120 mg in the evening or 240 mg bid. According to one manufacturer, there is no evidence that doses higher than 360 mg provide any increase in effectiveness.

OTHER CALCIUM-ENTRY BLOCKERS—Diltiazem (*Cardizem*) and nifedipine (*Procardia; Adalat*) are being evaluated in sustained-release preparations for treatment of hypertension. Longer-acting calcium-channel blockers such as nitrendipine are also being tested (JR M'Buyamba-Kabangu et al, Clin Pharmacol Ther, 41:45, Jan 1987).

Reprinted with permission from *The Medical Letter*, Vol. 29, April 10, 1987.

Table I

COST OF SOME ANTIHYPERTENSIVES

Drug	Maintenance Dosage	Cost*
Atenolol-*Tenormin* (Stuart)	50 mg once/day	$ 13.58
Captopril-*Capoten* (Squibb)	50 mg bid	34.52
Enalapril-*Vasotec* (Merck)	20 mg once/day	25.71
Hydrochlorothiazide	50 mg once/day	
generic average (range: 33¢ to $1.89)		.69
brand-name average (range: 60¢ to $4.02)		2.39
Metoprolol-*Lopressor* (Geigy)	200 mg once/day	27.55
Propranolol	80 mg bid	
generic average (range: $6.55 to $20.80)		14.13
Inderal (Ayerst)		23.61
Propranolol, long acting	160 mg once/day	
Inderal LA (Ayerst)		19.86
Verapamil	120 mg bid	
generic (Parke-Davis)		17.72
Calan (Searle)		22.52
Isoptin (Knoll)		22.52
Verapamil, long acting	240 mg once/day	
Calan SR (Searle)		17.06
Isoptin SR (Knoll)		17.06

*Cost to the pharmacist of amount required for 30 days' treatment based on purchase of 100 tablets when available, according to Average Wholesale Price listings in *Drug Topics Red Book* 1986 and March 1987 *Update*.

CONCLUSION—Verapamil alone or with a diuretic appears to be effective for treatment of mild to moderate hypertension. One dose a day may be enough, and the drug is usually well tolerated, but adverse cardiac effects can be troublesome for some patients.

Transmucosal Controlled-Release Nitroglycerin

A new transmucosal formulation of nitroglycerin for buccal application (*Nitrogard*-Parke-Davis) recently became available in the USA for both acute treatment and long-term control of angina pectoris. Buccal nitroglycerin was previously marketed in this country, but only in larger tablets, *Nitrogard* is sold in small tablets comparable in size to sublingual nitroglycerin tablets.

PHARMACOKINETICS—The nitroglycerin in *Nitrogard* is impregnated in an inert cellulose polymer matrix. When the tablet is placed in the buccal cavity between the upper lip and gum, or between the cheek and gum, a gel forms that makes the tablet adhere to the mucosal surface, and the drug diffuses into the systemic circulation. Hemodynamic studies and measurement of plasma nitroglycerin concentrations have shown an onset of effect within two to four minutes. Nitroglycerin continues to be absorbed across the mucosa as long as the tablet remains intact, usually about four to five hours (range one to six hours). Plasma nitroglycerin concentrations remain in the therapeutic range throughout this period, but tend to decline rapidly once the tablet is completely dissolved or removed (J Abrams, Am Heart J, 105:848, 1983).

CLINICAL STUDIES—Two double-blind treadmill studies in patients with stable effort angina found that the anti-anginal action of buccal nitroglycerin lasted up to five hours when the tablet remained intact for five to six hours (N Reichek et al, in WD Bussmann et al, eds, *Controlled Release Nitroglycerin in Buccal and Oral Form*, Basel:Karger, 1982, p 143; A Greengart et al, Chest, 83:473, 1983). Maximal improvement, comparable to that with sublingual nitroglycerin, occurred between one-half and one hour.

Limited data suggest that buccal nitroglycerin, like other nitrate formulations, may also improve cardiovascular function in some patients with congestive heart failure (A Lahiri et al, Ann Intern Med, 105:141, 1986; SS Sanghera et al, J Int Med Res, 14:274, 1986).

ABSENCE OF TOLERANCE—Two small comparative trials found that buccal nitroglycerin was at least as effective for prevention of angina as transdermal nitroglycerin patches or oral isosorbide dinitrate (N Reichek et al, Circulation, 70:II-190, 1984; JO Parker et al, Am J Cardiol, 56:274, 1985). In both studies, the buccal tablet consistently increased the time to onset of angina during exercise, while patients receiving continuous therapy with the transdermal preparation for 24 hours or oral isosorbide dinitrate for two weeks developed tolerance to the effects of the drugs. Tolerance has not been reported with up to two weeks' use of buccal nitroglycerin, possibly because intermittent use of these tablets produces a rapid rise and fall in plasma and tissue nitroglycerin concentrations with a nitrate-free interval at night, when the tablet is usually removed.

ADVERSE REACTIONS—A few patients have developed mild erythema or irritation of the buccal mucosa, and many notice a mild tingling or stinging sensation in the mouth at the site of tablet contact. Ulceration has been reported (DG Parsons, Br J Clin Pract, 37:295, 1983). Typical nitrate adverse effects, such as headache, dizziness, and nausea, can occur. Whether these effects are more or less frequent with the buccal formulation is not clear, but severe symptoms can usually be relieved promptly by removing the tablet. With any formulation of nitroglycerin, overdosage, which theoretically could occur with rapid dissolution of the tablet, can cause hypotension. Alcohol or calcium-channel blockers such as diltiazem (*Cardizem*) may increase the hypotensive effects of nitrates.

ADMINISTRATION AND DOSAGE—Patients taking buccal nitroglycerin may require more counseling than patients taking other forms of nitroglycerin. Many at first have some difficulty in eating or drinking while permitting the tablet to dissolve slowly in their mouths, but most quickly learn to accommodate. Talking and tongue motion can dislodge the tablet or increase the rate of dissolution, particularly before a firm gel has formed, and some patients have complained that the tablet dissolves when they drink hot liquids. The manufacturer advises taking the drug after meals and removing any undissolved medication at bedtime to prevent aspiration.

Buccal nitroglycerin is available in 1-, 2-, and 3-mg tablets. For prevention of angina, the manufacturer recommends starting with 1 mg every five hours while awake. In general, clinical effectiveness in angina has been greatest with doses of 2 mg or more.

CONCLUSION—Buccal nitroglycerin provides rapid relief of angina pectoris that persists for several hours in many patients, without development of tolerance in short-term studies. For patients who can accept the presence of a tablet in their mouths for four or five hours, it may be a useful alternative to other nitrate formulations for prevention and treatment of angina.

Table 2
SOME NITRATES FOR ANGINA

Drug	*Onset of Action*	*Duration of Action*	*Sizes Available*	*Cost**
Nitroglycerin				
sublingual tablets	1-3 min.	30 minutes		
generic-Lilly			0.15,0.3,0.4,0.6mg	$ 2.74
Nitrostat-Parke-Davis			0.15,0.3,0.4,0.6mg	2.51
spray	about 2 min.	30 minutes		
Nitrolingual-Rorer			0.4 mg metered dose	10.80
buccal tablets	2-4 min.	3-5 hours		
Nitrogard-Parke-Davis			1,2,3 mg	12.00
transdermal	about 1 hour	24 hours		
Deponit-Wyeth			5,10 mg	35.19
Nitrodisc-Searle			5,7.5,10 mg	33.97
Nitro-Dur II-Key			2.5,5,7.5,10,15 mg	38.40
Transderm-Nitro-Ciba			2.5,5,7.5,10,15 mg	40.03
Isosorbide dinitrate, chewable tablets	about 3 min.	45 minutes-2 hours		
Isordil-Wyeth			10 mg	10.68
Onset-5-Bock			5 mg	4.34
Sorate-Trimen			5,10 mg	7.00
Sorbitrate-Stuart			5,10 mg	10.84
sublingual tablets	about 3 min.	30 minutes-1 hour		
generic (range: $1.57 to $2.50)			2.5,5,10 mg	1.98
Isonate-Major			2.5,5,10 mg	2.25
Isordil-Wyeth			2.5,5,10 mg	11.75
Sorbate-5-Trimen			5 mg	6.25
Sorbritrate-Stuart			2.5,5,10 mg	10.84

*Not based on equivalent dosage. Cost is to the pharmacist for either 100 tablets or 30 patches (largest size available), or for a canister containing 200 doses of spray, according to manufacturers' listings in *Drug Topics Red Book* 1986 and March 1987 *Update* (Average Wholesale Price used when available).

How More Than 3000 Doctors Have Eased The Pain Of Managing A Practice.

If your practice is like a lot of others, you often spend more time on office problems than on the health problems of your patients.

Our one easy-to-use, fully-integrated computer system can take care of billing, provide financial updates, help you market your practice. And give you more time to do what you went to medical school for.

"We've found that Medic saves us many hours of paperwork every week. A couple of hours of work is down to 15 minutes."
Jeanine Mielke, office manager, Hahn, Hoard & Taub, M.D., P.A., Boca Raton, Florida

This urology practice uses Medic Computer Systems to electronically transmit many Medicare claims every day. A job that once took a large part of the business day is now done in minutes. And that's only one of the ways that Medic saves time on paperwork.

"It's helped our cash flow tremendously."
Mike Griga, general manager of Mayfield Neurological Institute, Cincinnati, Ohio

Changing the billing system from once a month to once a week is just one way Medic has improved the bottom line of the nation's largest neurosurgery group.

"Any time we've had a problem, Medic has been immediately responsive. They bend over backwards to suit their customers. It's the best money we have ever spent."
Wynne Vaughan, office manager, Capital Pediatric and Adolescent Center, P.A., Raleigh, North Carolina

We'll do whatever it takes to keep your system working. Day or night. We have a toll-free STAT line to handle questions and problems. And there's a STAT PLUS line from our support center to your system for software updates and diagnoses.

"Our practice has doubled and we have not had to add additional billing personnel. Medic has been able to handle whatever we've asked of it."
Nancy Psimas, office coordinator, Portsmouth Orthopaedic Associates, Portsmouth, Virginia

The Medic system can ease the process of sending statements and reduce the number of uncollected bills. Plus, our easy-to-understand printouts help you keep better track of your financial condition.

"Medic's extensive training program for our staff made it easy to introduce the system. We recommend it highly."
Tessa Horne, administrator, Morgantown Ear, Nose & Throat Clinic, Morgantown, West Virginia

"We love the training program. And the updates they do really help," Ms. Horne said. When a practice brings in over 200 patients a day as this one does, the business office has to run smoothly. "Medic does everything we need. It's great."

So if you want to increase the efficiency, productivity and profitability of your practice, take a look at the Medic Computer System.

Over 3000 physicians in more than 800 practices throughout the U.S. are calling it a minor medical miracle.

medic
computer systems

8601 Six Forks Road, Suite 300
Raleigh, North Carolina 27615
Telephone Toll-Free: 1-800-334-8534
In North Carolina Call: 919-847-8102

Other Offices: Orlando, Ann Arbor, Chicago, Cincinnati, Pittsburgh, Richmond, Atlanta

Report of the Special Task Force on Professional Liability and Insurance and the Advisory Panel on Professional Liability

AMA BOARD OF TRUSTEES

The AMA's Special Task Force on Professional Liability and Insurance and its Advisory Panel on Professional Liability jointly submit this status report for the information of the House. The report summarizes the activities of the AMA in the area of professional liability and reviews significant events of the last six months.

In addition, this report responds to Resolution 100, adopted by the House of Delegates at the 1986 Interim Meeting. Resolution 100 directed the AMA's Special Task Force to study issues and develop recommendations relating to expert witness testimony and, more particularly, to the more frequent use of court-appointed impartial expert witnesses.

1. THE YEAR TO DATE

The first six months of 1987 has been a time for confirmation. Both the special seriousness of physicians' liability concerns and the need for creative solutions were reinforced by new "nonpartisan" evidence, as well as by recurring episodes of the dysfunction that has characterized the medical dispute resolution system in recent years.

Nothwithstanding a *New York Times* proclamation in February that the insurance crisis was "over," the evidence that severe and enduring problems in the medical area remain accumulated to such a degree that it can no longer be doubted by anybody. In March, President Reagan's Justice Department-based Tort Policy Working Group disclosed that while some sections of the insurance market have indeed stabilized, medical liability lines continue to generate disproportionately high underwriting losses. Medical liability and general commercial casualty (another troubled area) accounted for 33% of the industry's total paid losses in 1986 while generating only 13% of premium dollars.

The continuing presence of affordability and availability problems was underscored by yet another round of dramatic 25-40% premium increases in Florida, which forced some physicians to immediately withdraw from their emergency room practices. Florida's denial of insurers' requests for additional increases a few months later prompted commercial companies insuring approximately 8,000 physicians to announce their intention to withdraw from the market, a situation which is yet unresolved. Meanwhile the advent of largely unregulated and potentially undercapitalized risk retention groups, aggressively marketing new sources of coverage to disgruntled physicians, has created additional worries.

The case for the reasonableness of tort reforms long advocated by the medical profession also was confirmed in early 1987. Both the Justice Department and the U.S. General Accounting Office (GAO) issued reorts acknowledging the probable effectiveness of the reforms contained in the AMA's federal bill. Even the American Bar Association's Action Commission on the tort liability system concluded that "a host of identifiable problems" in tort law need to be addressed if the system is to function with fairness and efficiency.

But while a great deal of tort reform has continued to be enacted in 1987 there also has been a broadening appreciation that medical liability issues differ in many respects from other tort problems and may require specialized solutions. The Health Policy Agenda for the American People—supported by over 170 organizations interested in health care—as well as the GAO and a number of state governmental task forces have now recommended exploration of alternatives to the traditional system for medical claims. The first legislative step was taken by the Virginia General Assembly in establishing a special no-fault compensation system for infants injured during their birth. And the AMA, together with a coalition of 32 national medical specialty organizations, continued with its development of a model for a completely new fault-based administrative alternative to the current system. (See Part 3 of this report.)

The American public also confirmed in 1987 their understanding of the deficiencies of the tort system. A March 1987 survey by Louis Harris and Associates disclosed that most Americans attribute increases in the frequency and costliness of lawsuits to such deficiencies and that 60-70% would favor collateral source offsets, a sliding scale on attorneys contingency fees and a $250,000 cap on noneconomic damage awards. Almost 80% of the Americans surveyed responded that a major reason for the increasing expense of the tort system is "people who figure they can make a lot of money" from their lawsuits.

EDITOR'S NOTE: This is a report of the AMA Board of Trustees to the House of Delegates at its Annual Meeting, June 1987.

2. FEDERAL LEGISLATION

The AMA-initiated federal bill that would provide financial incentives to states to enact tort reform/quality assurance provisions has been reintroduced in the 100th Congress as "The National Professional Liability Act of 1987" (S.1315/H.R.1955). Sen. Chic Hecht (R-NV) joined the bill's previous cosponsors Orrin Hatch (R-UT) and Daniel Inouye (D-HI) in introducing the Senate legislation. Rep. Norman Lent (R-NY) introduced the House companion bill, joined by ten original cosponsors.

Over the past year, a substantial body of evidence supporting the potential effectiveness of the tort reforms advocated by the medical profession has been produced. Patricia Danzon's "new evidence" on the effect of tort reform in reducing the severity of awards has been widely accepted by policy makers. The results of a major closed claims study published by GAO in April 1987 also are supportive. Among other findings, GAO's study showed that 57% of medical liability claims were closed without an indemnity payment, and that insurers spent (and passed along to providers and ultimately consumers) $349 million in defense transaction costs for these unsuccessful claims in 1984.

While the Reagan Administration has not endorsed the Hatch-Lent bill, both the GAO and the Justice Department Tort Policy Working Group have recommended to states the core reform elements of the AMA bill, ie, caps on noneconomic damages, collateral source offsets, periodic payment requirements for future damages, and regulation of attorneys' contingency fees. Whether the final report of the Department of Health and Human Services' (DHHS) task force, which is now expected in July, will take the additional step of endorsing a more meaningful federal leadership role remains to be seen.

The Hatch-Lent bill was modified prior to its introduction this year to provide states with some discretion to enact reasonably equivalent alternatives to the core elements specified in the bill. States such as Indiana or Louisiana, which have developed patient compensation fund frameworks for medical claims, would now be eligible for federal incentive grants, as would other jurisdictions enacting workable alternative programs that seriously address professional liability issues.

3. ALTERNATIVES TO TORT REFORM

In February, the *Journal of the American Medical Association* published an editorial entitled "Beyond Tort Reform," which presented the case for medical liability claims being peculiarly unsuited to resolution through the traditional tort system. The editorial outlined what a new dispute resolution system might do, including:

(a) retain fault, but with liability standards more consistent with the range of discretion in the art of medicine and the realities of medical practice;
(b) contain mandated quality assurance, risk management and disciplinary provisions for physicians;
(c) replace juries with impartial expert triers of fact;
(d) contain incentives to settle and less adversarial evidentiary rules; and
(e) place limitations on compensation for noneconomic injuries.

AMA's coordination project with 31 national medical specialty societies and the Council of Medical Specialty Societies has committed almost $700,000 to the primary task of designing a model of such a system. Project representatives met for two days in March 1987 to further review options for how the system might work. Recognizing that the system cannot respond simply to physicians' concerns, during coming months the process will increasingly involve presenting our draft model for critique to a wider range of interested parties including litigation attorneys, insurers and patient representatives. A working draft of the model system should be completed by the project's consultants by the end of summer.

The nation appears to be poised to look seriously at alternative systems. Significantly, the final report of GAO's series on medical liability recommends that DHHS finance demonstration projects to evaluate alternative dispute mechanisms. Legal and practical obstacles abound, but the perception has clearly grown that a fairer, less adversarial and more efficient means of compensating patients injured by medical negligence may be an achievable goal.

4. THE AMA/SPECIALTY SOCIETY MEDICAL LIABILITY PROJECT

AMA's professional liability coalition with national medical specialty societies is now well-established, operating under the direction of a steering committee comprised of representatives from 13 organizations including the AMA. The steering committee has met on five occasions over the past year to monitor the progress of ongoing projects. Additional meetings were organized for the coalition's patient safety/risk management and communications subcommittees.

In addition to its work on the alternatives project described in Part 3, this coordinated effort in 1987 has:

(a) published in February a new refutation to the opponents of tort reform entitled *The Continuing Need for Legislative Reform of the Medical Liability System*—the volume has been well received and was cited in the March report of the Justice Department's Tort Policy Working Group;
(b) continued to examine patient safety and risk management issues and programs—a consultant has now been retained to assist in preparing a compendium of quality assurance programs due by early fall; and
(c) established a coordinated communications agenda, which has undertaken to develop a new patient brochure for adaptation by state, county and specialty societies, as well as information kits for both physicians and the media.

The specialty society liability project continues to present a unique opportunity for organized medicine to work together in pursuit of common goals.

5. QUALITY ASSURANCE

In response to widespread criticism in the press, medical licensing boards appear to be devoting increased attention and resources to the difficult task of removing incompetent or unethical physicians from practice. AMA has strongly supported this effort and has included among the quality assurance provisions of the Hatch-Lent bill the requirement that states "dedicate" medical licensing revenues to their quality assurance and disciplinary activities. Reducing, where possible, the incidence of medical negligence also is one goal of AMA's new initiative on quality assurance (Board of Trustees Report QQ, A-86). AMA has reinforced its call to all physicians to vigorously discharge their ethical duty to report substandard practice and practitioners to the appropriate authorities.

Other AMA quality assurance activities ongoing in 1987 include:

(a) support of the physician disciplinary clearinghouse initiative mandated by the Health Care Quality Improvement Act of 1986—the AMA has agreed to jointly submit a bid with the Federation of State Medical Boards to operate the federal data bank;

(b) preparation of the compendium of quality assurance activities described above in Part 4 under the auspices of the AMA's coalition activity with medical specialty societies;

(c) a new program implementing the mandate of Report QQ to monitor AMA membership and expel physicians who are incompentent or have engaged in serious misconduct;

(d) a committed effort to also assist state and local societies in doing effective screening for incompetent or unethical practitioners.

The medical profession made substantial gains over the past year in protecting peer review participants from the threat of antitrust liability, culminating in a December 1986 opinion letter issued by the Justice Department acknowledging the value and legality of the process when done in good faith. The Health Care Quality Improvement Act, signed into law last November, also provides antitrust immunity for physicians' peer review activities if specified conditions are met. New guidelines for physicians doing peer review, incorporating an explanation of recent changes in the case law and legislation, are now being prepared by the AMA General Counsel's office, in conjunction with the Committee on Medicolegal Affairs.

6. OTHER DEVELOPMENTS

A. *Center for Health Policy Research.* The revised paper of AMA economists Roger Reynolds, John Rizzo and Martin Gonzalez on "The Cost of Medical Professional Liability" was published in *JAMA* in May 1987. Employing two distinct methodologies, the economists estimate the total cost of medical liability to have been $12.1 to $13.7 billion in 1984. These costs include professional liability insurance premiums, the cost of practice changes made in response to increasing liability risks, and the cost of incurring claims not covered by insurance. The Professional Liability Clearinghouse established in the Center continues to catalog and analyze relevant materials and publish its monthly newsletter, *Professional Liability Update.*

B. *Public Relations.* "A Federation Communicators' Guide to Professional Liability" was published by AMA's Division of Communications in January. The document summarizes and cross-references the public relations campaigns of state and specialty medical societies.

Over the past six months, the Communications Division has continued to develop opportunities for AMA spokesmen to address professional liability issues and highlight AMA activities, with good results. The March 1987 Louis Harris survey disclosed that almost 70% of American adults believe limits should be placed on awards, confirming 1986 AMA survey results. The AMA survey published in December 1986 indicated also that 76% of the public believe that physicians pay too much for insurance.

This report is submitted by the Special Task Force on Professional Liability and Insurance and the Advisory Panel on Professional Liability, whose members are: Alfred J. Clementi, M.D., Bradford P. Cohn, M.D., Frank C. Coleman, M.D., George E. Collentine, M.D., Ralph M. Milliken, M.D., William W. Moore, M.D., Russell J. Rowell, M.D., and William C. Scott, M.D.

The directive contained in Resolution 100 to study issues relating to expert witness testimony is now being carried out by the Special Task Force in the context of development of tort reform alternatives described in Part 3 of this report. The Board of Trustees will inform the House of further developments at the 1987 Interim Meeting.

CSMS Members:

Let's Talk About A New Concept In Health Care.

Century 2000.

Century 2000. A Preferred Provider Program in which more than 4,000 health care providers in this state are now participating.

Century 2000. Providing quality with an emphasis on preventive care.

Century 2000. Reducing costs by encouraging members to use its managed care network of Preferred Providers.

Century 2000. For information on how you can become a Preferred Provider call 1-800-922-1742 extension 5137.

Blue Cross
Blue Shield
of Connecticut

Editorials

Imaging Studies: On Request or by Direction?

The article by Dr. El-Mallakh in this issue is a valuable addition to the rapidly growing literature detailing the cost, utility, and efficiency of radiologic and other diagnostic studies. The concept of "useful negative" and "useless positive" findings is a helpful way of looking at the results of these procedures.

The radiologic literature has dealt with many of these issues, including the value of routine skull and spine films,[1,2,3] an algorithmic approach to the choice and sequence of routine radiography, computed tomography, ultrasound, and magnetic resonance imaging studies, comparison of roentgenology with endoscopy,[4] and the role of the radiologist as a consultant before as well as after the studies are ordered.

Who should decide on which investigation to order, and in what order multiple examinations are to be performed? Traditionally, the referring clinician makes these decisions. This is understandable, as he or she has the first and most intimate relationship with the patient. When compared with the radiologist, however, his/her knowledge of the modalities and their positive and negative features is clearly limited. This is further complicated by problems of self-referral with those clinicians who own diagnostic equipment or have a financial interest in imaging centers.

There are certainly drawbacks to total control by the radiologist, however. His or her knowledge of the patient is far less complete than that of the clinician, but the radiologist has a better appreciation of the radiation and financial burden of each examination, its likelihood of detecting what is sought, and the possible interference of one examination with another. Close interpersonal relations with referring physicians are essential for any radiologist seeking to take into account the interests of both patient and doctor when attempting to alter patterns of investigation.

The technology explosion has made these questions of increasing importance. It is unclear at present how they will finally be resolved, but either internal agreement or external forces will soon determine who is to order what, when, and why. Until that time, studies such as that offered by Dr. El-Mallakh will help us to make the best decision for the patient, the doctor, and society.

M.B. Ozonoff, M.D.

Newington Children's Hospital
Newington, CT

REFERENCES

1. Baker SR, Gaylord GM, Lantos G, Tabbaddor K, Gallagher EM. Emergency skull radiography: the effect of restrictive criteria on skull radiography and CT use. *Radiology* 1985;156:409-13.
2. Baker SR, Rabin A, Lantos G, Gallagher EJ. The effect of restricting the indications for lumbosacral spine radiography in patients with acute back symptoms. *AJR* 1987;149:535-8.
3. Cummins RO. Clinicians' reasons for overuse of skull radiographs. *AJR* 1980;135:549-52.
4. Gelfand DW, Ott DJ, Chen YM. Primary panendoscopy: A radiologist's response. *AJR* 1987;149:519-20.

AIDS Is First a Medical and Public Health Problem

Human Immunodeficiency Virus, HIV, AIDS—whatever name you prefer—this deadly infection that appeared inexplicably, seemingly from nowhere six years ago, by columns of type in the news and periodicals or minutes of air time on radio and television now occupies the nation's attention as has no other disease entity in this century. Unfortunately, until now most discussions of its causes and the means to control it have occurred not in medical journals but in the public press, and not in scientific assemblies but in legislative arenas. If you are confused and uncertain of where to turn, join the crowd. You have plenty of company.

The magnitude of the problem has been widely chronicled. To date, world-wide slightly in excess of 51,000 cases have been reported, more than half of them from the United States. The number of deaths related to AIDS doubles every 13 months; more than 10% of admissions to some internal medical services and as many as 5% of patients seen by some pediatric residents are now HIV seropositive. It is estimated that about 5 million persons are currently infected with the virus, with at least 1.5 million, possibly as many as 3 million, in this country. Until recently it was believed that approximately 20% of those infected would develop the disease itself, a frightening figure. It is now suspected that a more accurate appraisal is closer to 100 percent, a devastating notion, which

---

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

when coupled with the until now inexorable spread of this menace, has started to unravel some of our social fabric.

Society's Response

Consider:

- When surveyed, more than 25% of residents in training have stated that they would prefer not to care for AIDS patients; more than 50% overall dislike caring for such patients; and more than 90% express anxiety in caring for these patients.

- Firemen and other public safety personnel are becoming reluctant to go to the aid of badly injured and bleeding people and *medical personnel* in many instances express comparable fears about providing emergency aid to similar victims or to participate in CPR under certain circumstances.

- A physician who merely distributed a newsletter discussing AIDS suddenly finds his office lease in a condominium complex canceled.

- At one major university hospital it is verboten to write the diagnosis in the record. Consultants and others participating in the care of such patients either must come to their own conclusions as to the nature of the problem or decipher some obscure codes craftily hidden in the progress notes.

- A recent editorial in a major metropolitan newspaper opines that in today's hospital environs, patients about to undergo surgery have cause to fear that their surgeon or other operating room personnel might, if carrying the virus, be accidently cut, bleed into the operative site and transmit the infection to the patient.

- A surgical technician refuses to participate in a surgical procedure unless the hospital will disclose whether the patient has tested positive or negative for AIDS.

These are but a few culled from a rapidly growing list.

Consider also some true absurdities: When asked about a pending bill on AIDS testing, a member of the United States Senate, instead of citing the opinions of public health authorities, launches into a personal appraisal of the accuracy of current testing techniques; a television panel discussion on the subject of AIDS features a rabbi, a news columnist and a social worker, with the medical viewpoint being supplied by a physician whose major experience with the disease is entirely personal; when the Secretary of Health and Human Services attempts to outline some of the research measures proposed to elucidate further the epidemiology of this serious health problem, members of the audience turn their backs on him and hiss; and when the U.S. Surgeon General courageously goes public with some strong admonitions concerning the control measures that will need to be pursued if we are to begin to control the spread of the virus, he is soundly castigated by a variety of "medical experts" such as Phyllis Schlafly, who even more absurdly achieves an audience for her "expert views."

All too frequently, the medical individuals and organizations most capable of providing reasoned, carefully considered and balanced advice on this issue have feared to express themselves or to participate in the public debates that have raged across the country lest they be visited by some form of public excoriation.

Why are we faced with this increasing dilemma and contradiction of values? At one time public health officials had the authority to quarantine those with chicken pox. Until smallpox was completely eradicated, patients with that viral infection were quickly isolated as soon as the diagnosis was suspected. Even today no one thinks twice about segregating patients with open, active tuberculosis. Most jurisdictions have very specific reporting requirements for infectious diseases, including several venereal diseases—with provisions for maintaining confidentiality that in most instances do work. I could go on, but in short, for generations whatever public health measures have been deemed necessary to control the spread of communicable disease have been quickly enacted by state legislatures and implemented in a humane, compassionate and responsible fashion by medical and public health personnel the nation over—until AIDS.

What makes AIDS a different proposition is that purely social concerns have come to dominate discussions of how best from a *medical and public health* standpoint to deal with the most far reaching and potentially devastating *medical and public health* problem we have faced in almost 40 years.

Generational Gaps

Much of the seeming hysteria that has greeted the emergence of this infection can perhaps be traced to two phenomena that occurred amost simultaneously.

First, almost two whole generations of Americans have lived in an era totally free of the threat of any infection about which we could do absolutely nothing. Not since the development and almost universal application of the polio vaccine nearly 40 years ago have we experienced any widely disseminated infectious and readily transmissible viral, bacterial or other infection for which we had no cure or preventive measure. Prior generations had accepted the fact that from time to time rapidly spreading contagion demanded strict public health measures for their control, such as closing swimming pools and movie houses during August (public steam bath houses were not very prevalent in those days) and the separation of some patients from others in varying degrees of isolation. Our current generations have never had to face such a problem.

And second, during nearly the same interval, there has existed almost absolute freedom to engage in any form of sexual behavior without serious concern for the consequences. Modern contraceptive measures have removed the fear of pregnancy for those willing to use them and penicillin or some other medication has taken care of all the rest—until AIDS. Society became accustomed to the notion of unbridled freedom in which the rights of individuals to modulate their own conduct became sacrosanct, and as a corollary, the right to privacy came to supercede all other rights and needs in society, including, it seems, the need for the protection of the public health.

I have no desire either to quarantine or otherwise stigmatize AIDS victims or to trespass upon their privacy. I have no quarrel with the notion that within certain limits each individual has the right to develop his or her own conscience with respect to modes of personal conduct, and I do support with considerable intensity the right of everyone to privacy in private matters. I do, however, develop serious pangs when protecting these rights begins to interfere with good medical practice and sound public health measures designed to protect the health and safety of the majority of our society. I fully recognize that, to the degree possible, it is essential that we try to maintain privacy and confidentiality. It is also essential that we attempt to protect, where possible, the privacy and personal needs of the business person or professional individual with a spouse and family, who through some careless behavior manages to contract syphilis or gonorrhea, or the individual whose job or business could be threatened by the disclosure that he or she has active tuberculosis. Nonetheless, we are dealing with a problem of mammoth public health implications that must be accorded a solution that is in concert with sound public health practice.

Organized Medicine Speaks

We have had pontification from politicians, prognostications from news commentators, ruminations from sociologists, conferences on the subject convened in Washington and elsewhere under the auspices of several social and scientific agencies and the federal government, legislation by state and local governments, and reams of opinions delivered by state and local governments, and reams of opinions delivered by armies of armchair experts, with little cohesive direction despite herculean efforts by our Surgeon General, Dr. C. Everett Koop. The missing ingredient until very recently has been a statement by the organized medical community to provide guidance as to how to deal with this problem. At its annual meeting in June, the American Medical Association broke that silence with the adoption of a report authored by the Board of Trustees. This comprehensive 17-page document, while not perfect in every respect, represents an important beginning. It deserves wide dissemination and careful study.

The report does recommend the convening of a much needed special commission to develop a consensus position for consideration by the federal and state government. But in 16 other specific statements it goes much further, including: calling for effective counseling by physicians for both low and high risk patient populations; calling for voluntary *and* under specific conditions, mandatory testing and reporting for the identification of infected persons and for the protection of the uninfected; requesting counseling and education and the broadening of the epidemiologic data base; and urging physicians to keep in mind that precautionary measures are needed to prevent the spread of an infectious disease, the extent of whose dispersion in the population is currently unknown.

In the report, heavy emphasis is placed upon the application by physicians of sound clinical judgment, compassion, respect for privacy and confidentiality, and for counseling of patients both before testing and after testing. Several recommendations deal not only with the development of model laws for the maintenance of confidentiality and for the prevention of discrimination, but also the development of statutes to provide for warning unsuspecting parties who may be at risk because of contact with infected persons—such as sexual partners and health care workers—and for the consideration of sanctions for those who demonstrate a reckless disregard for the safety of others.

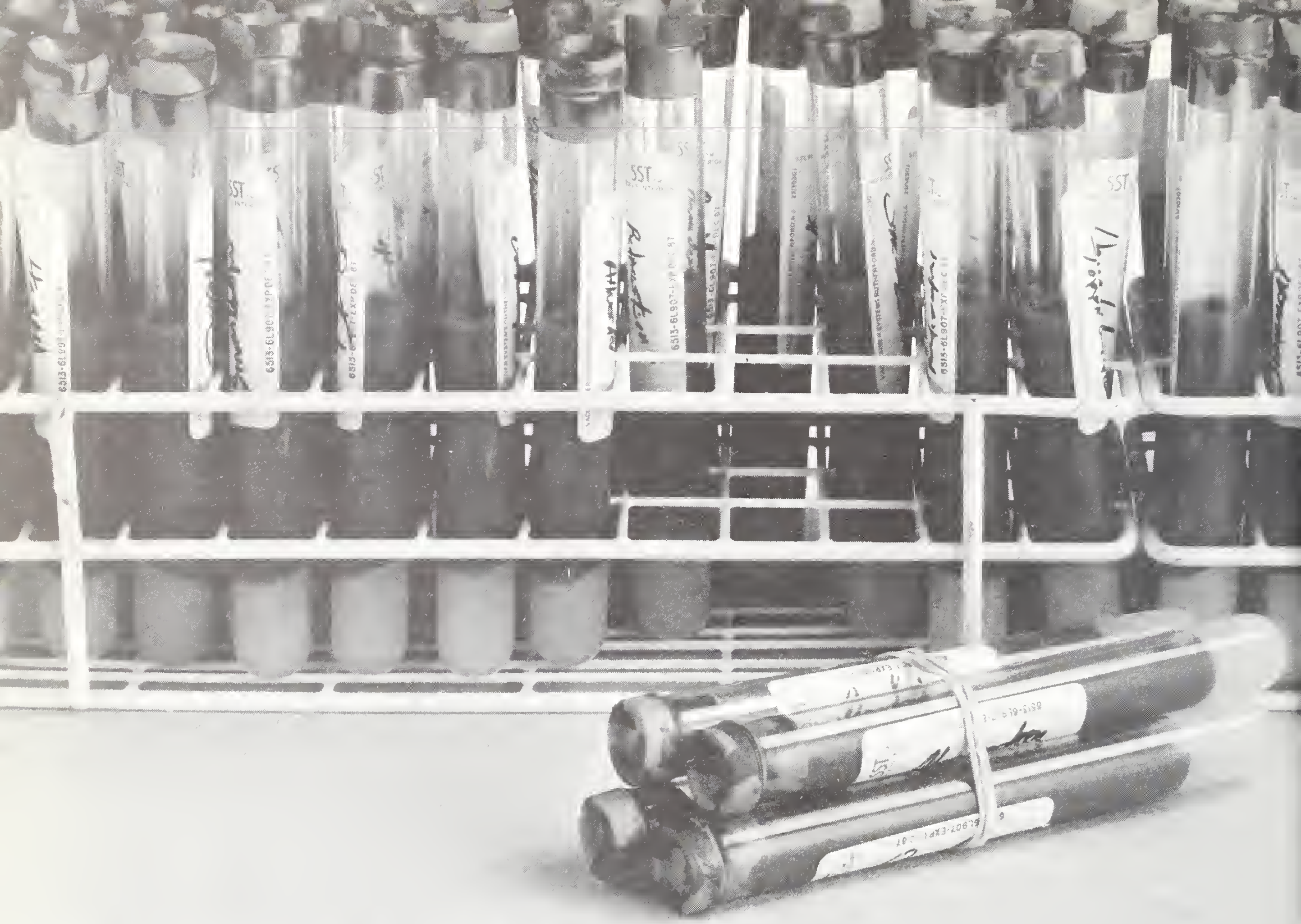
Finally, the report notes that it is the disease, not the victims, from which society must be protected, and that physicians have an ethical and professional responsibility to behave in a scientifically responsible manner.

As noted, this report is a superb beginning. We ought all become informed of its contents and assist in its implementation. As I see it, it is essential that we restore some sanity to discussions surrounding AIDS. It is, after all, a medical and public health problem, albeit with serious implications, not a social problem with some incidental medical and public health connotations.

Joseph F. Boyle, M.D.

Executive Vice President of
American Society of Internal Medicine

This article is taken from ASIM's publication, *The Internist: Health Policy in Practice*, August, 1987.



HIV Positive Confirmed. Then What?

AIDS is tough to treat. Ruthless to an increasing patient population, it challenges physicians and nurses as never before in their commitment to quality care.

The Spellman Center for HIV-Related Disease at St. Clare's Hospital and Health Center in New York City, accepts the challenge posed by AIDS and HIV infection. The first facility in the tri-state region to devote its resources solely to the care of AIDS patients, the Spellman Center designates its highest priority as compassionate patient care. A dedicated staff provides comprehensive medical, nursing, psychosocial, and dental treatment in an atmosphere that is warm and understanding.

The Spellman Center—a 60-bed Acute Care Unit, Emergency Service, Outpatient, Ambulatory Infusion and Dental Clinics—accepts referrals of patients with CDC-confirmed AIDS or ARC (AIDS-related complex), and those who are seropositive for HIV. Spellman also reaches out to offer testing, counseling and treatment to persons at risk for AIDS.

If you need consultation concerning your patients, or more information, please call Dr. Debra Spicehandler, the Medical Director, at (212) 459-8409.

The Spellman Center also maintains an information hotline for patients with questions about AIDS: 1-800-433-AIDS.

The Spellman Center
for HIV-Related Disease
A Designated AIDS Treatment Facility
St. Clare's Hospital and Health Center

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

The President's Page

Directory

Now that the lazy summer days are over, many of you are moaning "Where did the summer go?" It seems that Memorial Day was just last week. If that was the scenario, you had a good summer.

I'm sure many of you—like me—read a number of books you were too busy to read last winter. Well, for all of you, I've got a book that you can spend the whole winter browsing through and finding something new each time you do. It's not on The *New York Time's* best seller list, but it's a "must," not only for every physician, but for almost anyone interested in the health care field in Connecticut.

It's called MEDICAL DIRECTORY OF CONNECTICUT 1987-1988 and was published by your Connecticut State Medical Society just in time for the fall season. The *Time's* Book Review Section didn't carry any reviews on it and had no advertising about it. But I can tell you that it has all the slickness of a Madison Avenue production. Four hundred eighty-six pages contain almost all the medical information that one needs to refer to. After you read through it, I'm sure you will agree that this extremely valuable and comprehensive listing of medically related information is of outstanding scope and quality.

The *Directory* was compiled by the able staff of your Medical Society under the direction of Raymond T. Sullivan, Jr., Director of Public Affairs. His unique talents and uncounted hours spent in the compilation, editing, and presentation of such a prodigious amount of information is to be commended. At the same time, Mr. Sullivan created a complete and up-to-date data base for the Society's new computer system. Credit must also be given for the overall success of the *Directory* to Mr. Robert Pryzmierski of Paperware Systems of Wallingford.

The *Directory* was not funded through your dues but became practically self-sufficient financially from the beginning, due to the advertising sold by Mr. Sullivan and anticipated sales of the book.

The *Directory* is divided into ten information-packed, easy to read sections, starting with "Organized Medicine." This section lists everyone and anyone of importance in organized medicine starting with the president of the American Medical Association and finishing with the Windham County Medical Association. For those of you who wonder how the Society operates, the complete Charter and By-laws are there for your perusal. Even a page on The AMA Medical Code of Ethics is included.

The *Directory* lists, in one hundred seventy-five pages, Connecticut physicians in alphabetical and geographical sequence. The geographical listings also cite the physician's medical school, year of graduation, specialties and board certifications. A listing of existing accredited and extinct U.S. medical schools is included, as well as all foreign medical schools and their addresses.

Readers can find excellent listings of the names, addresses, and telephone numbers of all the state's hospitals, nursing homes, and pharmacies as well as a fine compilation of "Connecticut Organizations of Medical Interest."

"National Organizations of Medical Interest" have been compiled for your convenience in the *Directory*. This section includes the American Medical Association, all the American Academies of, American Associations of, American Colleges of, American Societies of, as well as a multitude of other organizations representing various medical interests.

The section on "Government" is particularly comprehensive and easy to refer to. It starts off with Federal Agencies—giving the name of the agency, who heads it, and an address and telephone number. This section includes the White House, Department of Health and Human Services, Food and Drug Administration, Health Care Financing Administration, and the Veterans Administration.

Names and directors of Connecticut State Health Organizations and Crisis Intervention Centers throughout the state are listed, as well as all state Medical Examiners.

Convenient, too, are the listings—with addresses—of all Connecticut State Officers, members of Congress, Connecticut legislators, with maps and listings of areas of representation.

State police and community emergency numbers, as well as geographic location of telephone number prefixes and ZIP codes are included.

The concluding section, "Connecticut Laws Governing the Practice of Medicine," is intended to alert physicians to laws affecting the practice of medicine in Connecticut, although it does not provide a complete listing of all laws which may affect a physician's practice. Specific questions should be referred to an attorney knowledgeable in health care law.

As the above review has shown, your Society now has a *Directory* which contains a wealth of material of use to you, as well as to the public. If you find data that need to be included or corrected, please feel free to write the Society so that corrections can be made in subsequent editions.

By the time spring rolls around next year, you and your staff will have used the *Directory* so many times that you will wonder how you did without it. You may have found that you did no other reading during the winter. Just think of the desk space it saved—no need for separate copies of the Charter, By-Laws, physician listings, ZIP Codes. No need to call various agencies to find out the names and addresses and telephone numbers of those included in the different categories in the *Directory*. No need to buy maps to see who is where. And, most importantly, the *Directory* is *free* for members of the Connecticut State Medical Society—a "perk" you never expected!

James P. Orphanos, M.D.,
President

right on TARGET

Consider a few features of **The Western Journal of Medicine:**

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

Enclosed is $________ to cover ________ subscriptions.
Subscription renewal ☐ Regular subscription ☐
Foreign subscription ☐

TO: ______________________________

Street ______________________________

City/State/Zip ______________________________

Specialty ______________________________

Gift Card to read "From ______________________________"

The Western Journal of Medicine

Please mail this coupon with enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year,
$90 2 years

Reflections on Medicine

Last Things: Planning Ahead

ROBERT U. MASSEY, M.D.

In my first year of practice an older clinical colleague—he was at least 40—gave me advice about caring for a terminally ill patient; he said that when the time came to decide whether to persist in treatment or to ease the patient's departure, I should not discuss it with the family. That would inflict a heavy burden which they would have to bear for the rest of their lives; we could shoulder things more easily, he said, and the obligation clearly belonged to physicians to do so.

All that was before the days of cardiopulmonary resuscitation, ventilators, pacemakers, even intensive care units, and the new morality. The most effective action we might take was to reduce the flow of oxygen into the tent, slow the intravenous drip, and increase the morphine. Hardly noticeable to anyone but the nurses and they rarely mentioned it; they knew what was happening, probably thought it overdue, not worthy of comment, and continued with their good nursing care. Several times I had seen this taking place when I was a resident, and had talked briefly about it with fellow house officers or attendings, a conversation which usually concluded with an expression of hope that someone would do the same for us one day.

Unfortunately we cannot count on that anymore. Hardly a week passes now in which someone does not have a painful tale to tell of the family too filled with sorrow to make such hard decisions, the hospital administrator who is worried about legal implications, and the patient whose wishes can no longer be expressed. Physicians know, they have been told often enough, these decisions are no longer theirs to make.

It may be just as well; some doctors may have misused their privileged position. I remember a professor of medicine who claimed to be responsible but not generally accountable; that was risky ground to occupy. But too much time spent accounting may mean that some hard decisions are never made or are made by default. The patient suffers for this higher morality and society pays.

That is why I was delighted to see a living will in a home-care patient's chart last month. Not just the simple statement about not being "kept alive through life support systems if my condition is deemed terminal," but she had written and initialed specific directions about what not to do: no tube feeding, no intravenous fluids, no antibiotics, no attempted resuscitation, no midnight trips to the hospital. Here there was no ambiguity; it was clear that she and her physician had worked this thing out with care. Her closest family members had signed as witnesses. The nurses who will look after her are prepared to reassure themselves from time to time that this remains an expression of her wishes.

Whenever I hear doctors, or the medical establishment, being criticized about inhuman technologies and exorbitant costs, this matter of the high cost of dying, or the crüel prolongation of life, almost always takes center stage. Young people blame us for it as though they had just discovered what we had failed to see; the elderly want to talk about it. Yet I have seen few living wills in medical records, and, when I have asked them, most older patients tell me that their doctors have never mentioned the matter. Is it a physician's professional duty to bring up the subject? There are some of us who are such efficient planners that, in the bloom of perfect health, we have drawn up our living wills, have had them witnessed, and have filed them where our families, physician, executor, and lawyer will easily find them. But more of us avoid thinking about such things, and, unless we feel the shadows closing in, would never without prompting take the step.

If we and our patients are to be spared torturing delays and ruinous indecision at the end, we must raise the issue of a living will or its equivalent before the difficult time comes. It will then be simpler to follow the advice given in the textbook I used over 40 years ago:

> "Now irksome restrictions should be modified and distasteful therapy limited. Finally comes the stage when opium in some form alone will bring surcease to suffering; it should not be spared at this stage."[1]

REFERENCE

1. Christian HA, *The Principles and Practice of Medicine* (Osler) ed 15, New York & London, D Appleton Century, 1944, p 1066.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

AIM HIGH

A SPECIAL PRACTICE

FOR

SPECIALISTS

★

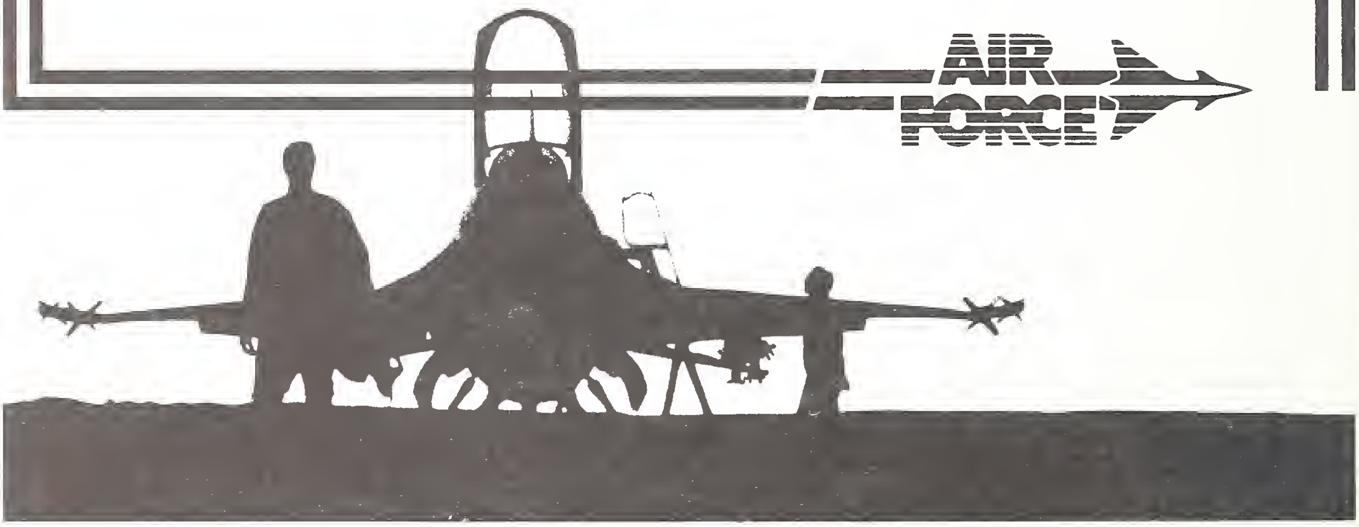
If you're a **Surgeon** or **OB/GYN** or **Other Medical Specialist,** the Air Force may have a special practice for you.

What makes it special? You'll enjoy an excellent pay and benefits package. There'll be more time to spend with your family. You'll receive 30 days of vacation with pay each year. And you will work with modern equipment and some of the most highly trained professionals in the world, serving your country and your patients. Now that's special!

Find out just how special your practice can be. Call

1-800-423-USAF

AIR FORCE



Confidentiality and AIDS

JOSEPH M. HEALEY, J.D.

Among the most frequently discussed issues at grand rounds and case conferences this year has been the tension between a physician's duty of confidentiality to a patient and a physician's duty to warn potential victims of danger posed by a patient. In previous columns[1] I have discussed this tension in the context of psychiatry when patients in therapy threaten to harm a third party. Recently, the focus of the discussion has shifted to AIDS and to patients who are H.I.V. positive and who potentially pose a threat of infection to those exposed to their blood or body fluids. How far should physicians go to assure that such transmission does not occur? Does the duty to warn outweigh the duty to treat as confidential sensitive information obtained during the doctor-patient relationship? Should the legal principles developed in the mental health context be employed in the context of AIDS?

Though the details vary, the scenarios presented are very similar. A physician has knowledge that a patient has tested positive for the presence of antibodies to H.I.V. infection. The confirmatory tests are performed and reaffirm the initial conclusion. The physician discusses the test results and explains the implications. Since the patient is at risk for transmitting the virus, the patient's sexual partner(s) and anyone likely to be exposed to sufficient quantities of the patient's blood or body fluids should be advised of the danger, and appropriate precautions to prevent transmission should be undertaken. The scenarios frequently include an unwillingness on the part of the patient to cooperate with the physician or a half-hearted acknowledgement of responsibility which the physician is unable to monitor. In some of the scenarios, the doctor knows and is already treating the sexual partner(s) of the patient. The physician asks whether there exists a duty to intervene by notifying the potential victims or by taking steps to influence or control the behavior of the patient.

As in the mental health cases, the starting point in analyzing these issues is the duty of confidentiality owed by physicians to their patients. This duty is deeply rooted in the Hippocratic tradition of medicine and promotes several important objectives. It affirms the dignity of the patient and emphasizes the patient's well-being as the primary focus of the physician's activity. It is the foundation for an atmosphere of trust which encourages the patient to discuss all relevant health issues with the physician in a full and honest manner without fear of exposure. Without such an assurance, patients may fail to seek health care when they need it, and may risk even greater harm to themselves and to others. Nonetheless, as the mental health cases have argued, confidentiality has not been considered an absolute duty. In appropriate circumstances, concern for the well-being of others can outweigh the duty of confidentiality. The key is to determine which circumstances justify action by the physician, and how this action can be carried out in an appropriate manner.

In establishing such boundaries in the AIDS setting, though the underlying issues involved in the tension between the duty to maintain confidentiality and the duty to intervene are very real and occur in a broad range of medical contexts beyond AIDS, there is need for special caution to assure that generalizations of irresponsibility attributed to members of "high-risk" populations be scrupulously avoided. The potential for punitive sanctions directed against those whose behavior is rejected by society is great, and efforts must be made to minimize such an undesirable occurrence.

In my next column, I will discuss the competing views about the extent to which the duty to intervene should be imposed and suggest some guidelines in dealing with this issue.

REFERENCES

1. Healey J: The Therapist's Dilemma: Respect Confidentiality or Warn Potential Victims? *Conn Med* 1986;50(10):703. Clarifying the Therapist's Duty to Warn Potential Victims. *Conn Med* 1986; 50(12):841; Clarifying the Therapist's Duty to Warn Potential Victims: II. *Conn Med* 1987;51(1):63.

JOSEPH M. HEALEY, J.D., Associate Professor, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

"SELLING PRACTICES
IS OUR BUSINESS"

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping hundreds of doctors like yourself buy and sell their practices. We guide you through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902

OCCUPATIONAL PHYSICIAN

Physician to act as Medical Director of medium sized manufacturing company in Southeastern Connecticut. Five days per week, total of 40 hours. Full benefits. Internal medicine or family practice background preferred. Some occupational experience desirable.

Please send resume/letter of qualifications in confidence to:

MBWT BOX 586
1 Lincoln Plaza
New York, NY 10023
U.S. Citizenship Required

Equal Employment Opportunity
Is Our Pledge and Practice

NEW YORK FERTILITY
RESEARCH FOUNDATION, INC.
For the Investigation of Problems of
Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

MATERIAL printed in *Connecticut Medicine*, the Journal of the Connecticut State Medical Society, is covered by copyright. Written permission must be obtained before reproducing, in part or in whole, any material published in *Connecticut Medicine*.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

PROSPECTIVE authors preparing manuscripts for submission to *Connecticut Medicine* should consult "Information for Authors." This material may be obtained from the *Journal* office. The manuscript, including references, should be typed double spaced; all material, including figures, should be submitted in duplicate. The transmittal letter should designate one author as correspondent and include his complete address and telephone number.

MANUSCRIPTS should be submitted to the Editor, Robert U. Massey, M.D., *Connecticut Medicine*, 160 St. Ronan St., New Haven, CT. 06511. Manuscripts are received with the explicit understanding that they are not simultaneously under consideration by any other publication.

ALTHOUGH all advertising material is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

REPRINTS are available at an established schedule of costs. A reprint rate and order form is sent to the author with his page proofs.

SUBSCRIPTION RATE: The subscription price per year for members of the Connecticut State Medical Society is included in the annual membership dues. The subscription price per year for nonmembers is $15.00 (Canada and foreign, $30.00). Single copies $4.50.

ADDRESS editorial and business correspondence to:
Connecticut Medicine, 160 St. Ronan St., New Haven, CT. 06511. Tel. (203) 865-0587.

CONNECTICUT MEDICINE is the official publication of the Connecticut Medical Society, a voluntary non-profit association organized for scientific and educational purposes, published monthly for members of the Connecticut State Medical Society.

From the Executive Director's Office

COUNCIL MEETING

Thursday, August 27, 1987

Attendance

Present in addition to the Chairman, G.W. Van Syckle and Vice-Chairman, M.S. Eslami were: Drs. Abbot, Ahamed, Beck, Bobruff, Bonner, Chmieleski, Czarsty, Fox, Freedman, Kamens, McDonnell, Orphanos, Petrie, Ragusa, Sadowski, Sullivan, Jr., Sweet, Villa, Welch, Whalen, Jr., Zanker and Zlotsky.

Also present: Mr. Norbeck, Mrs. Lindquist, Mr. Brunell, Mr. Sullivan, Mr. Staples, Mrs. Connelly, Mr. Tomat (FCMA), Mr. Coffey (HCMA), Mr. Freberg (NHCMA) and Mrs. Ganguli (President, Auxiliary).

Absent were: Drs. Ahrens, Dardick, O'Brien, Reyelt, Jr., Robbins, Rose, Rubin, Schwartz, Upham and Wetstone.

Remarks of the Chairman of the Council

Dr. Guy W. Van Syckle, Danbury, thanked the members of the Council for re-electing him chairman and informed them that he considered it an honor. For the benefit of the new members of the Council, Dr. Van Syckle reviewed briefly how the Council conducts its business. His comments were as follows:

(a) Robert's Rules of Order are followed.

(b) Although latitude is allowed in discussing items, it is preferred that motions are made prior to discussion.

(c) In general, it is the practice to report minutes as succinctly and briefly as possible and one item that is arbitrarily excluded is all lost motions. Anyone, at the time of the next meeting, when the minutes are available for review, has the right to question the accuracy of the minutes and request a change or addition. If there is anything that should have been incorporated in the minutes, a motion to that effect should be made at the beginning of the meeting. It was emphasized that failed motions, regardless of merit, are not recorded.

(d) The cut-off time for the meeting is usually six o'clock.

Reports From Physicians Serving On State And Federal Agencies

Since many agencies have ceased to be functional, there were no reports from physicians. Cameron Staples, CSMS staff, reported that he had attended the meeting of the Connecticut Nurses' Association Prescriptive Authority Task Force which is discussing the possibility of obtaining prescription authority for Connecticut RN's. CSMS staff will be monitoring these meetings and keep the Council informed.

Report of the President

Dr. Orphanos reported that the issue of Mandatory Assignment and the Voluntary Courtesy Program is still a matter of concern as to its implementation. CSMS is still waiting for information from the Department on Aging. Representative Frankel is appointing a Task Force, composed of one member from each county, to discuss the implementation of the law. Funding of $79,00.00 has been given to the Department on Aging to cover the cost of the program. He further reported that he has been invited to attend the New Hampshire Medical Society meeting to discuss the Connecticut experience on mandatory assignment.

A letter was received requesting suggestions from CSMS for inclusion in the Democratic or Republican national platforms. Anyone having suggestions should submit them to the Executive Director's office.

Dr. Orphanos brought to the attention of the Council a report of the AMA Board of Trustees on "Proposed Models of Nursing Services for Independent Nurse Practice in Hospitals and Communities." The report states that the American Nurses Association has revealed plans to secure an independent and more direct, influential role for nurses in delivery of care in institutions, in the community, and in home care. Models or frameworks for the delivery of nursing services have been developed, and legislative strategies have been suggested to codify a new, independent, and autonomous role for nurses. Dr. Orphanos requested that copies of this report be sent to all members of the Council.

Report of the Executive Director

Mr. Norbeck reported that there is still no communication from the Department on Aging. CSMS staff has been in constant touch with the DOA trying to obtain information on the contract. The DOA should accept much of the responsibility concerning the outreach for seniors participation, but it can be assumed that they will not readily agree to carrying out some of the details of the programs which CSMS feels is their responsibility. Although mailings have been carried out to physicians and senior citizen centers, the screening of applications and mailing of courtesy cards have placed a tremendous burden on the CSMS staff and the county medical association staffs. Mr. Norbeck expressed his appreciation for the cooperation of the county medical associations. He further reported that negotiations have been undertaken with Electronic Data Systems (EDS), the agency which processes the ConnPACE cards, to ascertain whether it would be feasible to have the agency also handle the Courtesy Card.

It was VOTED that, at the discretion of the CSMS staff, a letter be written to the Department on Aging that their delay in submitting a contract is hindering the implementation of the courtesy card program, with copies to appropriate legislative leaders and their Governor.

Mr. Norbeck also informed the Council that he had been invited to attend a meeting of the Florida Medical Association to inform them of Connecticut's experience on the mandatory assignment issue and the courtesy card. They anticipate a conflict with the elderly in Florida on top of their already acute liability crisis situation. Based on the discussion, they plan on recommending the adoption of a medical courtesy card to their constituents.

He further mentioned that the Massachusetts Legislature proposed a bill to make it mandatory for all Massachusetts physicians to take Medicaid patients. A compromise was reached that 85% of all physicians would see Medicaid patients.

M.D. Health Plan Update

Dr. Whalen gave a chronological review of the progress of M.D. Health Plan, stating that the Council first accepted the concept in October 1985 and on August 12, 1987 M.D. Health Plan was licensed in Connecticut. He further reported there were many hurdles along the way which were all overcome. Marketing of the program will begin at once. Dr. Whalen also presented a check to the Treasurer of CSMS for $159,760 representing repayment of the funds expended in the development of the IPA/HMO. He further stated that the loans were being paid and shortly CSMS should receive a release from the bank as guarantor of the loans. Dr. Whalen was given a standing ovation and it was VOTED to write a letter to M.D. Health Plan expressing appreciation for the repayment of the loan.

Update on CMIC Transition

Dr. Orphanos reported for CMMI, which is the wholly owned subsidiary of CSMS, and which contracted with CMIC to provide services. For the first three years CMMI contracted with American Insurance Services to operate the company. The Board of CMMI has decided not to renew the option for AIS to continue services to CMIC beyond October 1, 1987, and the company has been in a transition stage for the past six months. Almost all of the staff has agreed to remain as employees of CMMI. Dr. Orphanos also commented on the reinsurance market, the increase in insurance rates and the possibility of including dentists in the CMIC program.

Nominations for Positions on AMA Councils

A list of memberships of Councils of the AMA indicating vacancies that will exist in June 1988 were reviewed and it was VOTED to submit the name of Edward A. Kamens, M.D., Fairfield, for membership on the Council on Medical Service.

Meeting of the Rhode Island Medical Society

Dr. Sultan Ahamed reported that he had attended the annual meeting of the Rhode Island Medical Society and it appears that the problems of physicians around the country are identical, i.e., mandatory assignment, liability insurance, HMO's, and third party payors. He reported that members of the Rhode Island Medical Society were impressed with the mandatory assignment legislation achieved in Connecticut and also with the development of CMIC and M.D. Health Plan.

Resolution on Equestrian Headgear

Following discussion of a letter received from the Chairman of the Committee on Medical Aspects of Sports, it was VOTED to approve the recommendation of the Committee, which was submitted to the Council Meeting of July 1, and endorse the AMA action on the use of equestrian headgear. The AMA resolution reaffirms and continues to promote existing policy regarding safety during equestrian activities which includes the wearing of protective headgear.

Report on AMA Meeting of Resident Physician Section

It was VOTED to receive as information the report on the AMA-Resident Physician Section held in June 1987 which was submitted by Eric F. Bernstein, M.D. He reported that he had the opportunity to serve on a reference committee which dealt with many issues, including residency training and AIDS confidentiality.

Task Force on AIDS Program

It was VOTED to receive as information that Elihu York, M.D., Chairman of CSMS Committee on Public Health, has been appointed to the Task Force to work with the Department of Health Services in AIDS program planning. This Task Force was created under the provisions of Public Act 87-389.

Life Members

It was VOTED to receive as information the following list of Life Members effective 1/1/87: John A. Britting, Windsor (H), A. Arthur Fierberg, Hartford (H), Kenneth R. Knox, Hartford (H), Daniel E. Mack, Suffield (H), Moses Margolick, Putnam (W), James M. McCormick, Stonington (H), Josephina C.H. Rodriguez, Somers (T), Morris J. Seide, Hartford (H), William J. Stack, Hartford (H), Archibald W. Thomson, Jr., Portland (M).

CSMS Directory

It was VOTED to commend Raymond Sullivan of the CSMS staff on the publication of the CSMS directory.

N.B.: *The foregoing is a summary of the proceedings and actions of the Council on August 27, 1987. Detailed minutes of the meetings are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.*

Manuscripts

Manuscripts should be submitted to **Robert U. Massey, M.D., Editor, CONNECTICUT MEDICINE,** 160 St. Ronan St., New Haven, CT. 06511, **in original and one duplicate copy.** The author should retain another copy for his records. A covering letter should identify the person (with the address and telephone number) responsible for negotiations concerning the manuscript; the letter should make it clear that the final manuscript has been seen and approved by all authors.

Author Responsibility

The author is responsible for all statements made in his work, including changes made by the copy editor. Manuscripts are received with the explicit understanding that they are not simultaneously under consideration by any other publication. All manuscripts are acknowledged upon receipt and are followed up by notification of either acceptance, revision or rejection. Although rejected manuscripts are generally returned to the author, the *Journal* is not responsible for loss. Accepted manuscripts become the permanent property of the *Journal* and may not be published elsewhere without written permission from both the author and the *Journal.*

Copyright. **Material that is published in CONNECTICUT MEDICINE is protected by copyright. In view of *The Copyright Revision Act of 1976,* effective January 1, 1978, authors of articles accepted for publication will be required to sign a statement containing the following language: "In consideration of the Connecticut State Medical Society taking action in reviewing and editing my submission entitled (here give title) the author(s) undersigned hereby transfers, assigns, or otherwise conveys all copyright ownership to the CSMS in the event that such work is published by the CSMS."**

Manuscript Preparation

Copy must be typewritten double-spaced on (8½ x 11-inch) heavyduty, white, bond paper. This requirement applies to all text elements: references, legends, footnotes, and others. Allow generous margins on each page—at least 1½ inches at top, bottom, and left, and 1 inch at right. Pages should be numbered consecutively.

Titles and Authors' Names

The first page of the manuscript should include (A) title of paper; (titles should be short, specific, clear, and amenable to indexing. A subtitle is frequently useful in keeping the main title short); (B) name of author(s), including first name(s) and with academic degree(s); (C) List hospital positions for each author and any institutional or other credits. If an author's present affiliation is different from the affiliation under which the work was done, both should be given.

Addenda and appendices are usually not acceptable. If additional data become available before manuscript submission or final author approval, this material should be incorporated into the text.

Abstracts

The second page should contain an abstract of not more than 150 words. This abstract should be factual, not descriptive, and should present the reason for the study, the main findings (give specific data if possible), and the principal conclusions. Do not include a summary.

References

The following minimum data should be typed double-spaced: names of all authors, complete title of the article cited, name of journal abbreviated according to *Index Medicus*, year of publication, volume number, and first and last page numbers. All references must be cited in the text. They should be arranged according to the order of citation, and not alphabetically. All references must be numbered consecutively. Numbered references to personal communications, unpublished data and "in preparation" are unacceptable. If absolutely essential, such material may be incorporated in the appropriate place in the text or as a footnote. Sample references are as follows:

1. Jones J: Necrotizing *Candida* esophagitis. *JAMA* 1980; 244:2190-2191.
2. Kremer H, Kellner E, Schierl W, et al: Ultrasonic diagnosis in infiltrative gastrointestinal diseases. Dtsch Med Wochenschr 1978;103 (June 9): 965-966. Abstracted, *JAMA* 1978;240:2784.
3. Influenza vaccine—recommendations of the Public Health Service Advisory Committee on Immunization Practices. *MMWR* 1979;28:231-238.
4. Fischer DH: *Growing Old in America.* New York, Oxford University Press, 1977, pp 210-216.

Tables

Data presented in tables should be self-explanatory and should supplement, not duplicate, the text or figures. Excessive tabular data are discouraged. Each table should be typed double spaced, including all headings, on separate sheets of 8½ x 11-inch paper. Oversize paper should not be used. Instead, repeat heads and stubs on a second sheet for tables requiring extra width. Number tables consecutively with respect to citation in the text. Each table must have a title.

Illustrations

Figures should be professionally drawn and photographed, if possible. Glossy, clear black and white photographs should be submitted.

Line drawings, graphs and charts should be done in India ink on high-grade white drawing paper. Lines should be examined for evenness, breaks, and proper alignment. Lettering and symbols should be clear and of even density throughout. Symbols, lettering, and numbering should be of such proportioned size that when the figure is reduced to *Journal* column width (8 cm) each item will still be distinctly recognizable.

Do not send original artwork or black and white negatives.

Each figure should have a label pasted on its back indicating the figure's number, the names of the authors, and the top of the figure. Do not mount the figure on cardboard. Do not write on the backs of figures, nor expose them to paper clips.

If photographs of patients are used, either the subjects should not identifiable, or their pictures must be accompanied by written permission to use the figure.

Legends for illustrations should be typewritten (double space) on a separate sheet with numbers corresponding to the figures.

Drug Names

Generic names should, in general, be used. If an author so desires, brand names may be inserted (parenthetically).

Permissions

Materials taken from other sources must be accompanied by a written statement from both author and publisher giving permission to the *Journal* to reproduce such material. If clearances are required by the author's institution, statements concerning such clearance should be provided in the manuscript.

Review and Action

All manuscripts are subject to review by referees in appropriate fields of medicine. Authors are usually notified within three to six weeks as to the acceptability of a manuscript, but sometimes longer delays are unavoidable.

IN MEMORIAM

AGEE, FRED B., Jr., George Washington University School of Medicine, 1942. Dr. Agee was an internist in the Hartford County Area since 1952. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died July 12, 1987 at the age of 69.

ALPERT, MAX, Yale Medical School, 1928. Dr. Alpert was an otolaryngologist in the Fairfield County area since 1928. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died August 3, 1987 at the age of 82.

GLAUBMAN, HENRY M., Yale, 1927. Dr. Glaubman was a pediatrician in the Hartford County area since 1932. He was a member of the Hartford County Medical Society, the Connecticut State Medical Society and the American Medical Association; died March 29, 1987 at the age of 85.

HANDLER, SEYMOUR L., University of Louisville, 1951. Dr. Handler was a psychiatrist in the New Haven County area since 1959. He was a member of the New Haven County Medical Association and the Connecticut State Medical Society; died May 31, 1987 at the age of 62.

HORN, BENJAMIN, New York University, 1929. Dr. Horn was a cardiologist in the Fairfield County area since 1932. He was a member of the Fairfield County Medical Association and the Connecticut State Medical Society; died April 27, 1987 at the age of 82.

JANUARY, DERICK A., Yale, 1934. Dr. January was an obstetrician & gynecologist in the Hartford County Area since 1940. He was a member of the Hartford County Medical Association and the Connecticut State Medical Society; died June 22, 1987 at the age of 84.

LIEBOWITZ, SEYMOUR A., University of Basle, Switzerland, 1965. Dr. Liebowitz was an orthopedic surgeon in the Hartford County Area since 1972. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died July 14, 1987 at the age of 50.

MARIKAR, M.A. SULAIMAN, University of Ceylon, 1967. Dr. Marikar was a psychiatrist in the Hartford County Area since 1975. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association; died July 25, 1987 at the age of 44.

MARKLEY, LUDWIG L., Germany University, Prague, 1925. Dr. Markley was a dermatologist in the Fairfield County area since 1947. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died April 25, 1987 at the age of 85.

RUSSMAN, CHARLES A., Tufts Medical School, 1923. Dr. Russman was a psychiatrist in the Middlesex County area since 1925. He was a member of the Middlesex County Medical Association and the Connecticut State Medical Society; died August 15, 1987 at the age of 88.

STEWART P. BRIAN, Middlesex Hospital, London, 1950. Dr. Stewart practiced research and development in the Litchfield County area since 1978. He was a member of the Litchfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died April 1, 1987 at the age of 64.

STRAYER, LUTHER M., Harvard Medical School, 1930. Dr. Strayer was an orthopedic surgeon in the Fairfield County area since 1933. He was a member of the Fairfield County Medical Association and the Connecticut State Medical Society; died May 17, 1987 at the age of 81.

SWAN, BERNARD R., Cornell, 1943. Dr. Swan was an obstetrician and gynecologist in the New Haven County area since 1950. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association; died May 17, 1987 at the age of 71.

TERHUNE, WILLIAM B., Tulane, 1915. Dr. Terhune was a psychiatrist in the Fairfield County area since 1919. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died June 26, 1987 at the age of 93.

WALZER, EUGENE H., New York College of Medicine, 1940. Dr. Walzer was an allergist in the Fairfield County area since 1947. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association; died April 20, 1987 at the age of 73.

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

AMBULATORY CARE

Full or Part time position available immediately for physician in established Walk-In Center in Branford, CT. Please send C.V. to: Harry Ardolino, M.D., Coastline Medical Center, 9 Business Park Dr., Branford, CT 06405 or phone (203) 481-0818.

EMERGENCY MEDICINE

Full-time positions in satellite and main emergency departments of JCAH-Approved 380 bed hospital, with residency program. Full hospital emergency department privileges. Unique combination of emergency and urgent care medicine. Paramedic base stations in both facilities. Seek EM/FP/IM, BC/BE individual, ACLS, ATLS. ER experience preferred. Highly competitive salary and benefit package. Excellent work schedule. Shoreline area. Contact Gordon Van Nes, M.D., Emergency Department, Middlesex Memorial Hospital, Crescent St., Middletown, CT 06457. (203) 344-6691.

FAMILY PRACTICE

For Sale: Family/General Practice. Excellent location and opportunity. Well-established; financially rewarding. Five minutes from hospitals. Please call evenings 574-1788.

INSTITUTIONAL MEDICINE

Chief of Medicine. JCAH-Accredited 350-bed State Veterans Hospital seeks physician to serve as Chief of Medicine. Supervisory experience and Connecticut licensure required. Excellent working conditions and benefits package; competitive salary. Contact Ms. Sharon Wood, Hospital Administrator, Veterans Home and Hospital, 287 West St., Rocky Hill, CT 06067. 529-2571, ext. 2281. EOE.

INTERNAL MEDICINE

Immediate opening to join practicing internist. Full or part time. Rapidly growing area. Please send C.V. to Rozann Venti, M.D., 269 Church St., Hebron, CT 06231.

Gastroenterologist to join well-established two physician Internal Medicine Group in Central CT. Large practice in Adult Medical Primary and Subspeciality Care. Expertise in all GI procedures essential. Liberal salary and benefits with progression to partnership. Send C.V. to, Harold P. Kaplan, M.D., Internal Medicine Associates, P.C., 116 Cook Ave., Meriden, CT 06450.

General internist needed to join newly formed internal medicine group practice in semi-rural northeast Connecticut with a service area of 60,000. Ideal environment for raising a family yet within an hour of three university medical centers. Initial salary with progression to full partnership. Send CV and particulars to CSMS, c/o IM/MC.

The Equitable Life Assurance Society is seeking a BC/BE Cardiologist and/or Internist for part time work in insurance medicine. The job involves risk assessment of insurance applicants, EKG and stress test interpretation, consultations with underwriters, etc. Previous experience in insurance medicine is desirable but not absolutely necessary. We will train as required. Applicants primary work schedules should be flexible enough to allow scheduling of work on an intermittent and irregular basis. We anticipate needing help approximately 60 days during the next year. Interested individuals should contact Dr. L.E. Daniels, Medical Director, at (203) 783-8379. Equitable is located at 488 Wheelers Farms Road in Milford (Exit 55 off the Merritt Parkway).

OTOLARYNGOLOGY

Active practice, general E.N.T. in Northwestern CT needs associate. Excellent location in growing area. Well-equipped office. Needs CT license and board certification. Call 489-0897 or send resume to CSMS, c/o OTO/TO.

PEDIATRICS

B/C B/E Pediatrician to join four Physician General Pediatric practice in coastal Southeastern CT. Please send C.V. to CSMS, c/o PED/BE.

BC/BE pediatrician needed to join busy two physician partnership. Shoreline community close to major medical center. Partners actively involved in teaching. Excellent salary leading to partnership. Please send C.V. to Howard D. Fink, M.D., 75 New Haven Avenue, Milford, CT 06460.

Busy private group practice seeking fifth pediatrician (BE or BC) with neonatology experience. Also responsible for pediatric inpatients, level II nursery and supervision of house staff. Some teaching responsibilities. 250 patient visits/week at three sites. Reply with C.V. to H. Hadley, Pedicorp, P.C., 80 South Main St., West Hartford, CT 06107.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

ANESTHESIOLOGY

Immediately available. Age 44. Presently in practice. MD, University of Tehran, Tehran, Iran; Int., New Rochelle Hospital Medical Center, New Rochelle, NY; Res., The Johns Hopkins Hospital, Baltimore MD; Fellowship, University of Maryland, Baltimore, MD. Available to any type practice. Write, Mahin Mehdizadeh, M.D., 1616 Imperial Ridge, Las Cruces, NM 88001.

FAMILY PRACTICE

July '88. Age 34. Presently in practice. Nat'l bds. AB cert. DO, Chicago College of Osteopathic Medicine, Chicago, IL; Int., USAF Medical Center, Scott AFB, IL; Res., David Grant USAF Medical Center, Travis AFB, CA. Prefers group, assoc. or institutional type practice in a medium to large-sized community. Write, Paul E. Bauer, D.O., PSC Box 3406, APO, NY 09057.

GENERAL SURGERY

Immediately available. Age 39. Presently in practice. FLEX. AB cert. MD, Cincinnati College of Medicine, Cincinnati, OH; Int., University of Connecticut, Farmington, CT; Res., Northeastern Ohio affiliates. Prefers group (multi-specialty or single specialty) in a medium to large-sized community. Write, Robert A. Cecchino, M.D., 2705 River Rd., Virginia Beach, VA 23454.

July '88. Age 27. Nat'l bds. AB elig. MD, Int. and Res., University of Oklahoma, Tulsa Medical College. Prefers group or associate type practice. Write, Doron H. Finn, M.D., 2825 S104 East Ave., Tulsa, OK 74129.

INTERNAL MEDICINE

Oct. '87. Age 40. Presently in practice. Nat'l bds. AB cert. MD, Tufts Medical School, Boston, MA; Int. and Res., The Hospital of St. Raphael, New Haven. Prefers group or associate type practice. Write, Michael Collins, M.D., 8259 Toll House Rd., Annandale, VA 22003.

July '88. Age 30. Nat'l bds. MD, University of Massachusetts Medical School Worcester; Int. and Res., Medical College of Wisconsin, Milwaukee. Prefers group or associate type practice in a small to medium-sized community. Write, Thomas A. Browning, M.D., 2343 N. 81st St., Wauwatosa, WI 53213.

Nephrology. July '88. Age 30. Nat'l bds. AB cert. MD, Chicago Medical School, Chicago; Int. and Res., Long Island Jewish Hospital, New York; Fellowship, Mount Sinai Hospital, New York. Prefers group or associate type practice in a medium to large-sized community. Write, Glenn A. Dubov, M.D., 75-36 Blvd., Apt. 2A, Bayside, NY 11364.

Rheumatology. Aug. '88. Age 31. Nat'l bds. AB cert. MD, S.U.N.Y., Upstate Medical Center, NY; Int., Res., and Fellowship, George Washington University Hospital, Washington, DC. Prefers solo, group or associate type practice in a medium to large-sized community. Write, Joseph P. Laukaitis, M.D., 1600 S. Eads St., #638-N, Arlington, VA 22202.

Jan. '88. Age 29. Licensed in Connecticut. FLEX. AB elig. MD, Autonomous University of Guadalajara; Int., Stony Brook School of Medicine, NY; Res., Norwalk Hospital/Yale University School of Medicine; Fellowship, North Shore University Hospital/Cornell School of Medicine, New York, NY. Prefers solo, group or associate type practice. Write, M.T. James, M.D., c/o F. Sammarco, Apt. 4F, Bldg. 1, 40 Prospect Ave., Norwalk, CT 06850.

May '88. Age 41. Nat'l bds. AB elig. MD, University of Illinois, Chicago; Int. and Res., University of Chicago, Chicago. Prefers solo, group, associate or institutional type practice. Write, Leilani L. Nixon, M.D., 1175 Gail Drive, Buffalo Grove, IL 60089.

Sept. '87. Age 29. Licensed in Connecticut. Nat'l bds. AB cert. MD, SUNY Upstate Medical Center, NY. Int. and Res., Medical College of Wisconsin, Milwaukee, WI. Prefers associate or institutional type practice. Write, Gerard J. Murphy, M.D., 7 Church Street, Rocky Hill, CT 06067.

ORTHOPEDIC SURGERY

Aug. '88. Age 38. Licensed in Connecticut. FLEX. AB elig. MD, University d'Etal de'Haiti; Int. (Haiti); Res., Howard University Hospital, Washington DC. Prefers group, associate or institutional type practice. Write, Maxime Coles, M.D., 10533 Pennydog La., Silver Spring, MD 20902.

PATHOLOGY

July '88. Age 30. Nat'l bds. AB cert. MD, Ohio State University College of Medicine, Columbus, OH; Int. and Res., University of Cincinnati College of Medicine, Cincinnati, OH; Fellowship, University of Nebraska College of Medicine, Omaha, NB (Hematopathology); University of Cincinnati College of Medicine, (Surgical Pathology). Prefers group or instititutional type practice preferably in a large community hospital or academic institution. Write, John F. Vago, M.D., 9224B Hunters Creek Drive, Cincinnati, OH 45242.

THORACIC SURGERY

July '88. Age 33. Nat'l bds. AB elig. MD, Georgetown University, Washington; Int. and Res., Geisinger Medical Center, Danville, PA; Fellowship, Ohio State University, Columbus, OH. Prefers solo, group or associate type practice in a medium to large-sized community. Write, Michael D. Harostock, M.D., 2337 Gavinley Way, Columbus, OH 43220.

UROLOGY

July '88. Age 32. Nat'l bds. MD, Cornell University, New York; Int., New York University Medical Center, New York; Res., Cleveland Clinic Foundation, Cleveland, OH. Prefers group or associate type practice in a medium to large-sized community. Write, Michael Ziegelbaum, M.D., 2396 Saybrook Rd., University Heights, OH 44118.

Immediately available. Age 55. Presently in practice. AB elig. MD, University of Tehran, Tehran, Iran; Int., New Rochelle Hospital Medical Center, New Rochelle, NY; Res., Johns Hopkins Hospital, Baltimore, MD (Urology). Available for any type practice. Write, Ayoub Mehdizadeh, M.D., 1616 Imperial Ridge, Las Cruces, NM 88001.

PAID CLASSIFIED ADVERTISING

BETHANY, CT NEEDS DOCTORS! Open a new Emergency Care Center Medical Office as soon as possible. Only 12 miles to Yale-New Haven; St. Raphael's; 10 miles to Waterbury Hospital. A new building is going up now in an established area. Lease with option to purchase. Contact: Gary Merritt, KATZ REALTY, INC., 1-800-843-3097.

FOR SALE. Highly visible walk-in Medical Center. Corporate and personal accounts. Steadily growing volume. Can be absentee operated. Owner financing available. VRBB. 794-9636. Contact Joe Adams.

PEDIATRICS PRACTICE FOR SALE in suburban Hartford area. Busy, well-established practice. Financing available. Reply: Doctor CMP, P.O. Box 425, Cos Cob, CT 06807.

CLASSIFIED ADVERTISING RATES

$50.00 for 25 words or less; 50 cents for each additional word.

$3.00 per insertion for confidential answers sent in care of CONNECTICUT MEDICINE. Payable in advance.

Connecticut Medicine

Vol. 51, No. 11 *The Journal of the Connecticut State Medical Society* November 1987
160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587

CSMS OFFICERS

James P. Orphanos, M.D. Greenwich
President
Norman A. Zlotsky, M.D., Rockville
President-Elect
Roger S. Beck, M.D., Wethersfield
Vice-President
Annemarie S. Welch, M.D., New Britain
Secretary
Robert R. McDonnell, M.D., New Haven
Treasurer
Lawrence B. Ahrens, M.D., Newington
Speaker of the House of Delegates
Mehdi S. Eslami, M.D., Waterbury
Vice-Speaker of the House of Delegates

AMA DELEGATES

Edward A. Kamens, M.D., Fairfield
Joseph C. Czarsty, M.D., Oakville, *Alternate*
Guy W. Van Syckle, M.D., Danbury,
Chairman of the Council
William A. Whalen, Jr., M.D., Willimantic, *Alternate*
Frank K. Abbot, M.D., Hartford
Jerome K. Freedman, M.D., New Haven, *Alternate*
Stewart J. Petrie, M.D., Derby
Joseph S. Sadowski, M.D., Hartford, *Alternate*

COUNCILORS

Robert P. Ragusa, M.D., Stratford
Fairfield County
Howard J. Wetstone, M.D., Hartford
Hartford County
George H. Rubin, M.D., Torrington
Litchfield County
Kenneth Robbins, M.D., Middletown
Middlesex County
Geroge A. Bonner, M.D., Guilford
New Haven County
Jerome Bobruff, M.D., New London
New London County
Gerald L. Schwartz, M.D., Rockville
Tolland County
Kenneth R. Dardick, M.D., Storrs
Windham County

ASSOCIATE COUNCILORS

Turpin H. Rose, M.D., Danbury
Fairfield County
John J. Sullivan, Jr., M.D., Stamford
Fairfield County
John J. O'Brien, M.D., Hartford
Hartford County
Robert M. Chmieleski, Bristol
Hartford County
W. Peter Reyelt, Jr., M.D., Sharon
Litchfield County
Juan Sosa, M.D., Middletown
Middlesex County
Theodore Zanker, M.D., New Haven
New Haven County
Marvin Fox, M.D., Milford
New Haven County
Sultan Ahamed, M.D., Norwich
New London County
Arturo D.P. Villa, M.D., Somers
Tolland County
Stephen M. Upham, M.D., Danielson
Windham County

COUNCILOR AT LARGE

Joseph C. Czarsty, M.D., Oakville

Editor	Robert U. Massey, M.D.
Literary Editor	Sherwin B. Nuland, M.D.
Editor Emeritus	J. Alfred Fabro, M.D.
Assistant to the Editor	Vivian C. Feriola
Staff Assistant	Valerie A. Redman

Editorial Board

Pediatrics	Michael D. Bailie, M.D.
Family Practice	Dewees H. Brown, M.D.
Cardiology and Internal Medicine	Martin Duke, M.D.
Psychiatry	Stephen Fleck, M.D.
Dermatology	Robert D. Greenberg, M.D.
Nephrology and Internal Medicine	William A. Handelman, M.D.
Infectious Diseases and Internal Medicine	David P. Johnson, M.D.
General Surgery	Kirk K. Kazarian, M.D.
Pathology and Hemotology	Ramon N. Kranwinkel, M.D.
Pathology	John L. Meyer, M.D.
Diagnostic Radiology	M.B. Ozonoff, M.D.
Obstetrics and Gynecology	Stewart J. Petrie, M.D.
Neurosurgery	Melville P. Roberts, M.D.
Cardiology	Michael A. Rossi, M.D.
Internal Medicine and Rheumatology	Robert T. Schoen, M.D.

CSMS Staff

Executive Director	Timothy B. Norbeck
Associate Executive Director	Josephine P. Lindquist
Director of Scientific Activities	Robert J. Brunell
Director of Public Affairs	Raymond T. Sullivan
Director of Government Relations	Cameron C. Staples
Coordinator Medical Courtesy Card	Margaret K. Connelly
Membership Department	Dorothy M. Stratton
Placement Service	Valerie A. Redman
Management Information Systems	Deborah P. Maynes
Accountant	Marc A. Sullivan
Secretary	Patricia Sullivan

Chronic Meningococcemia

PHILIP J. TUSO, M.D. AND MARY JEAN AHERN, M.D.

ABSTRACT—Chronic meningococcemia is rarely reported in the literature. Few cases have been reported over the last five years. The disease is seen in both children and adults and is characterized by clinical manifestations including fever, rash, joint symptoms lasting longer than a week, and blood cultures positive for *Neisseria meningitidis.* At the time of initial diagnosis symptoms may be mild, but serious complications have been reported. In this paper, we described a 19-year-old patient with meningococcemia who presented to the hospital with a history of rash and fever of 12 days' duration. Blood cultures were positive for group C *Neisseria meningitidis.* A punch biopsy of a typical skin lesion revealed an acute necrotizing septic vasculitis and, retrospectively, the tissue Gram stain of the skin biopsy demonstrated gram-negative diplococci. The patient was given penicillin G intravenously and recovered uneventfully. CH 50 complement levels were within normal limits.

Introduction

Chronic meningococcemia was first defined by Dock[1] as those cases of meningococcal septicemia which are characterized by fever for at least one week without signs of meningeal involvement. The first case was reported by Solomon in 1902.[2] Since then, there have been two extensive reviews of the literature: Benoit[3] in 1963 reported 148 cases and in 1974, Leibel et al[4] described 13 cases which occurred during childhood. Since 1968, a review of the literature revealed only 22 cases of chronic meningococcemia.[4 5 8 9 10 11 12] Benoit, in his review summarized many of the clinical manifestations of chronic meningococcemia. Fever was the most common manifestation occurring in 100% of patients (148/148). Rash was the second most common feature, seen in 93.2% (138/148). Other symptoms included joint complaints in 70.3%, headache in 61.5%, and upper respiratory infections in 37.1%. Complications occurred in 39.8% of patients reviewed by Benoit (55/148). The most significant complications included meningitis, carditis, anemia, and nephritis. Death occurred in 10% of all patients reviewed (15/148). (See Table 1.)

This paper describes a case of chronic meningococcemia that presented with a relatively benign clinical picture. Biopsy of the skin lesion revealed acute necrotizing vasculitis compatible with septicemia. We present our patient as an example of this entity which may present subtly and may be confused with a variety of similar disease processes. Prompt recognition and antibiotic therapy should result in a reduction of the likelihood of serious complications.

Case Report

A 19-year-old white male (AJM) was admitted to Griffin Hospital (Derby, Connecticut) on 30 December 1986 from his doctor's office. The patient presented with a chief complaint of rash and fever for 12 days. He had been well until three weeks prior to admission when he complained of a sore throat. An out-patient throat culture was negative for *Streptococcus* group A. The sore throat resolved but the patient became weak and tired approximately two weeks prior to admission, and 12 days prior to admission, experienced nightly fevers (up to 104°F) accompanied by lower extremity arthralgias and an upper extremity macular erythematous rash. He denied nausea, vomiting, photophobia or headaches.

There had been no previous hospital admissions, no history of rheumatic fever, surgery, IV drug abuse, venereal disease, tick bites or arthritis. He had no recent homosexual or heterosexual activity. Present medications included aspirin as needed for fever and antihistamine or decongestant for allergies. Physical examination revealed a well developed, muscular white male; his blood pressure was 115/82 and pulse 82. The respiratory rate was 18 and there was no fever. His neck was supple and non-tender. There was no pathological lymphadenopathy. The lungs were clear and the heart rate was regular, without murmurs or rubs. Except for multiple 1-2 cm erythematous macular lesions with violaceous centers, seen on the forehead and upper extremities, the remainder of the examination was unremarkable. No petechiae, needle marks or insect bites were seen.

Laboratory examination was remarkable for a white blood-cell count of 8,700/μL, with 79% neutrophils, 2% bands, and 17% lymphocytes. PT, PTT, platelet count, hemoglobin, hematocrit, rheumatoid factor, antinuclear antibody, mono test, and urinalysis were within normal limits. Out-patient blood cultures and throat cultures were negative for growth. The VDRL was negative, *Brucella*, *Proteus* OX-19, and *Salmonella* agglutins were negative. The antistreptolysin-o was 333 Todd units and the streptozyme test was positive. The erythrocyte sedimentation rate was 61 mm/hr and CH50 screen was 48 units/mL (normal value = 64 units/mL). Chest x-ray, EKG, and sinus x-rays were within normal limits. Examination of the cerebral spinal fluid (CSF) revealed a glucose of 61 mg/dL, a protein of 10 mg/dL with no white blood cells and two red blood cells per mL. Gram stain of CSF was negative for organisms and white blood cells. Culture of the fluid was negative. The punch biopsy of a skin lesion revealed a necrotizing vasculitis that was consistent with an acute septic vasculitis (Figure 1). Gram stains of the biopsy revealed

---

PHILIP J. TUSO, M.D., Resident, Internal Medicine, Department of Internal Medicine, The Griffin Hospital, Derby, CT. MARY JEAN AHERN, M.D., Associate Director of Infectious Services, Hospital of St. Raphael, New Haven, CT; Associate Clinical Professor of Medicine, Yale University School of Medicine.

Table 1
CLINICAL MANIFESTATIONS OF CHRONIC MENINGOCOCCEMIA

AUTHOR	*Benoit 1963*	*Niklasson 1973*	*Ognibene 1974*	*Liebel 1974*	*Angoff 1975*	*Tillotson 1980*	*Haburchak 1981*	*Wagner 1985*	*Total*
# Patients	148								
Fever	148 (100.0%)	4	1	13	1	1	1	1	170 (100.0%)
Rash	138 (93.2%)	4	1	13	1	1	1	1	159 (93.5%)
Joint Changes	104 (70.3%)	3	1	7	1	1	1	1	119 (70.0%)
Headache	91 (67.5%)	2	0	0	0	0	0	0	93 (54.7%)
Upper Resp. Infection	55 (37.0%)	1	0	0	0	1	0	0	57 (33.5%)
Splenomegaly	20 (13.5%)	20	1	0	0	0	1	0	22 (12.9%)
Meningitis	23 (15.5%)	0	0	2	0	0	0	0	25 (14.7%)
Carditis	19 (12.8%)	0	0	1	1	0	0	0	21 (12.3%)
Anemia	16 (8.7%)	1	0	0	0	0	0	0	17 (10.0%)
Nephritis	10 (6.8%)	0	0	0	0	0	0	0	10 (5.8%)
Death	15 (10.0%)	0	0	0	0	0	0	0	15 (8.8%)
Type	–	B	–	B	–	B	C	B	
Diagnosis	Blood Culture (BC)	BC	BC	BC	BC	BC	BC	CSF	

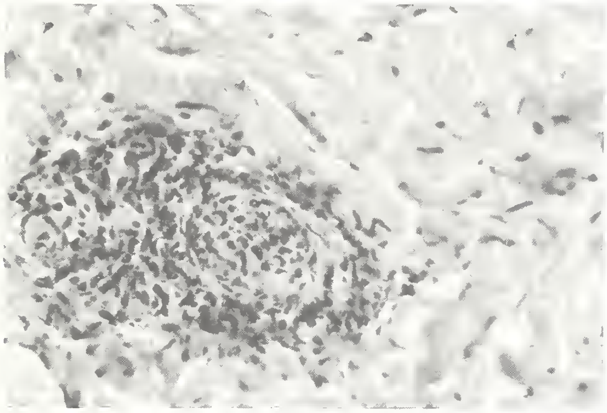
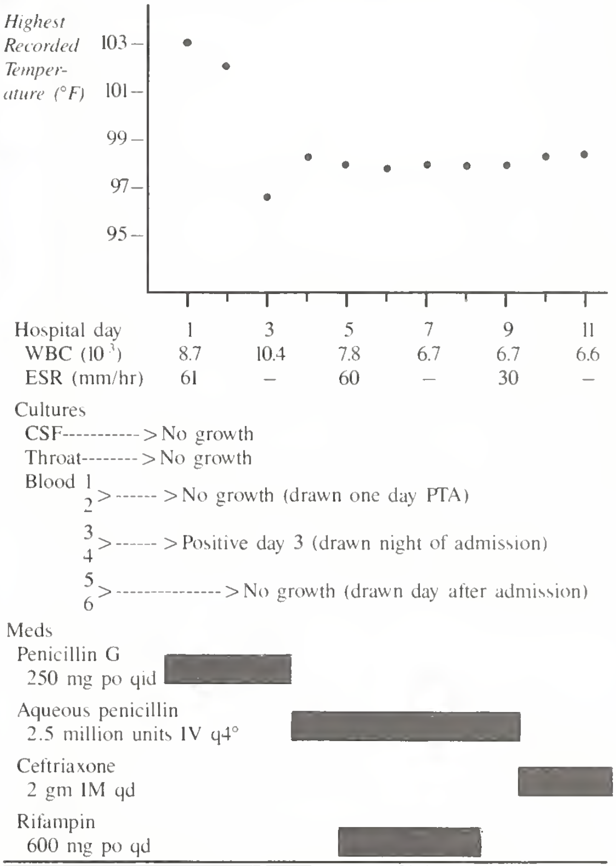


Figure 1

Low power: Microscopic examination of a punch biopsy taken from a typical macular erythematous lesion. The lumen of the vessel is occluded by a thrombus. There is endothelial swelling, granulocytic cell infiltrate, hemorrhage, and edema. These findings are consistent with an acute necrotizing vasculitis. Gram stain of this slide revealed gram negative diplococci. Magnification: 20X Stain: Hemotoxylin and Eosin.

Table 2
CLINICAL COURSE IN PATIENT AJM



Hospital day	1	3	5	7	9	11
WBC (10^3)	8.7	10.4	7.8	6.7	6.7	6.6
ESR (mm/hr)	61	–	60	–	30	–

Cultures
CSF----------->No growth
Throat-------->No growth
Blood 1, 2 >------>No growth (drawn one day PTA)
3, 4 >------>Positive day 3 (drawn night of admission)
5, 6 >--------------->No growth (drawn day after admission)

Meds
Penicillin G 250 mg po qid
Aqueous penicillin 2.5 million units IV q4°
Ceftriaxone 2 gm IM qd
Rifampin 600 mg po qd

gram-negative diplococci; a culture grew no organisms. On the night of admission, the patient's temperature rose to 103°F and blood cultures were obtained, which in three days became positive for *Neisseria meningitidis* group C. The patient initially refused intravenous antibiotics because he was feeling well. However, once the blood cultures had become positive, the patient was given aqueous penicillin 2.5 million units intravenously every four hours; he received seven days of intravenous penicillin and three days of ceftriaxone sodium 2 grams given intramuscularly daily on an outpatient basis. He received rifampin prophylaxis at discharge. The patient's antibiotic treatment, culture results, erythrocyte sedimentation rate, white blood cell count, and temperature curve are shown in Table 2.

Discussion

The clinical manifestations of chronic meningococcemia (see Table 1) have been reported in detail by several investigators.[3,4,5,8,9,10,11,12] In our review of the literature, we were able to identify 170 cases[3-13] of chronic meningococcemia. As reported by Benoit in 1963,[3] we found that in 22 additional patients (Table 1) fever, rash, joint changes, upper respiratory tract infections, and headache were the most common presenting complaints. A maculopapular rash was the most common skin manifestation reported. In 1975, Angoff[11] reported an unusual case of chronic meningococcemia that presented with splinter hemorrhages and a pericardial friction rub. Unlike those cases reported by Benoit,[1] our review of the literature revealed few complications and no deaths, possibly explained by the availability of more sensitive diagnostic technology, cognizance of the entity, and the advancement in antibiotic therapy.

Laboratory Findings

As expected, erythrocyte sedimentation rate (ESR) and C-reactive protein are usually positive in patients with chronic meningococcemia.[3-5] However, serology tests, chest x-ray, EKG, and sinus films are usually negative.[3] Tillotson[8] reported maxillary sinusitis secondary to *Neisseria meningitidis* found on initial sinus films. White blood cell counts were found to be higher than the maximal value reported by Benoit (36,000/μL). Most patients reported[4,5,8,9,10] had white blood cell counts that were below 20,000/μL. Most cases of chronic meningococcemia were diagnosed by blood cultures.[3,4,8,9] *Neisseria meningitidis* serogroup B was most commonly identified prior to 1980,[4,5,8] while after 1980, serogroup C was more prevalent.[9,10] Cultures of skin lesions were positive for organism for only one out of seven cases reported by Benoit.[3] In addition, other investigators were unable to make a diagnosis by culture, microscopic examination, or Gram stain of skin lesion specimens.[4,12,13] Angoff et all,[11] in his case report of a patient with unusual clinical manifestations, obtained a positive skin culture. Although we did not obtain a positive skin culture from the lesion biopsied from the patient in this case report, microscopic examination showed an acute necrotizing vasculitis consistent with sepsis and Gram stain revealed gram-negative diplococci. It is unlikely that the acute pathology seen in the skin lesion (Figure 1) could have been present over a 12 day period. The likely explanation is that the relatively quiescent phase of this illness developed into disseminated systemic disease with lesions showing histomorphological changes consistent with those findings observed in acute fulminating meningococcal sepsis. These lesions consist of vascular thrombosis and necrosis, endothelial cell swelling, and predominantly granulocytic cell infiltrate. In addition, small vessels are usually occluded by fibrin or thrombus, and bacteria are frequently demonstrated.[14,15,16] In contrast, chronic meningococcemia skin lesions evaluated by microscopy reveal lymphocytic peri-vascular infiltrate with the vessel lumen free of fibrin or thrombi. Bacteria generally are not seen on tissue Gram stain. Vascular walls are usually intact and there is no evidence of endothelial swelling.[3,13]

Differential Diagnosis

The differential diagnosis of chronic meningococcemia (Table 3) is extensive. The differential diagnosis should include viral, bacterial, rickettsial, fungal infections, collagen vascular disease, Schönlein-Henoch purpura, and Still's disease. Bacterial causes should be first considered primarily because they have serious sequelae and also because they are treatable. Acute meningococcemia[16] may present similarly to chronic meningococcemia but is more often characterized by a petechial rash and an illness suggesting a severe disseminated infection with prostration. Disseminated gonococcal infections[17] should also be considered in patients with recent history of sexual activity, pelvic inflammatory disease, or history of gonorrhea. Special consideration should be given to *Staphylococcus* infection[18] because disseminated infection with these organisms is usually resistant to antibiotics given to meningococcal septicemia patients (ie, penicillin). Pneumococcal septicemia may also be a consideration even in the absence of pulmonary involvement.[20] Of the viral causes, enterovirus[21] is the most common cause of rash and fever, but in the younger age group, rubella and rubeola should be considered. Fungal causes are rare but may occur in higher frequencies in patients with immunodeficiency syndrome.

Vasculitis[22] may also present with fever and rash. An example is Schönlein-Henoch purpura,[23] which should

Table 3

DIFFERENTIAL DIAGNOSIS IN CHRONIC MENINGOCOCCEMIA

1. Bacterial
   a. Group A *Streptococcus*
      - Rheumatic fever
      - Erysipelas
   b. Staphylococcal Infection
      - Scalded skin syndrome
      - Toxic shock syndrome
   c. Subacute bacterial endocarditis
   d. Typhoid fever
   e. Miliary tuberculosis
   f. *Mycobacterium leprae*
   g. *Neisseria gonococcus*
2. Rickettsial
   a. Rocky Mountain spotted fever
   b. Brill-Zinsser disease (*R. prowazeki*)
3. Viral
   a. Enterovirus
4. Fungus
   a. Candidemia
5. Protozon
   a. Malaria
6. Immunologic
   a. Erythema multiforme
   b. Erythema Nodosum
7. Collagen Vascular Disease
8. Vasculitis
   a. Henoch-Schönlein Purpura
9. Arthritis
   a. Still's Disease

be considered if the patient presents with abdominal pain, hematuria, and a blanching purpuric rash on the lower extremities.

Finally, one must consider rheumatic fever and Still's disease. Without positive blood cultures for chronic meningococcemia, rheumatic fever would be difficult to eliminate as a diagnosis in a patient presenting with fever, rash, and arthralgias.[24] Positive serologies for *Streptococcus* and history of pharyngitis would lead one to the appropriate diagnosis of rheumatic fever. Still's disease is a definite consideration in a patient who presents with fever, rash, arthralgias, arthritis, and negative cultures. However, the diagnosis of Still's disease should not be taken lightly since treatment of this entity does not include antibiotics.[25]

Diagnosis

The diagnosis of chronic meningococcemia should be considered in patients who present a greater than one week history of fever, rash, arthralgia, headache, or history of upper respiratory tract infection. Fevers characteristically occur intermittently[3] and the most common rash appears to be of the maculopapular variety. As discussed, many other diseases will give a similar picture but when the patient is not improving and a rash exists or develops, the lesion should be biopsied and Gram stained. However, the definitive diagnosis of chronic meningococcemia relies on blood culture demonstration of *Neisseria meningitidis.* To rule out meningeal involvement, the cerebral spinal fluid should be examined and cultured. Once the diagnosis has been obtained, all patients should be screened for complement deficiencies since patients with C_6, C_7, C_8 deficiencies have been associated with recurrent *Neisseria* bacteremia.[26,27] CH50 screens[28] should be obtained in chronic meningococcemia patients as well as acute meningococcemia patients. If the CH50 screen is abnormally low, then specific complement deficiencies should be determined. In addition, one should consider properdin deficiency since familial deficiencies of this protein have been associated with fatal meningococcemia.[29] Finally, the *Neisseria meningitidis* organism should be sent to regional laboratories for group typing, since vaccination may be efficacious.

Treatment

Once the diagnosis of chronic meningococcemia has been obtained, the treatment of choice is aqueous penicillin G intravenously for at least seven days.[30] If the patient is allergic to penicillin, chloramphenicol is acceptable as the drug of choice.[31] Some investigators have suggested that the third generation cephalosporin (ceftriaxone) may be used in a single daily dose for bacterial meningitis.[32] However, this practice is not widely used in meningoccemia since large studies have not yet been reported. The carrier state of meningococcemia can be treated with either minocycline or rifampin.[33] Sulfonamides were once the drug of choice for chemoprophylaxis until resistant meningococcal strains arose.[34] Minocycline is not a popular drug of choice because of the known side effects of vestibular toxicity. Investigators have also shown that some meningococcal strains are resistant to rifampin.[35] However, rifampin still remains the drug of choice for the treatment of meningococcal carriers of nasopharyngeal *Neisseria meningitidis.*[36,37] Vaccination has also been used alone and with chemoprophylaxis for eliminating the carrier state.[38] Finally, close follow-up of some patients with chronic meningococcemia is required because of literature reports showing the association between this disease and possibly I_gM deficiency.[39]

Summary

By definition, the case we have presented fulfills the criteria for chronic meningococcemia. The patient had fever and rash for 12 days without meningeal involvement. Blood cultures were positive for *Neisseria meningitidis* on the fourth hospital day. The unexpected finding in this case was the erythematous macular rash which showed acute septic vasculitis which is more consistent with acute meningococcemia. It is possible that the patient we discussed in this report was in the transition from chronic meningococcemia to an acute fulminant process. Fortunately, the diagnosis was made and antibiotic treatment prevented complications. Even though the past literature suggests that chronic meningococcemia is rarely diagnosed by skin biopsies, some investigators have found that skin biopsies are helpful in making the initial diagnosis.[12] Because the skin biopsy slide was so suggestive of septicemia, we recommend that lesions of this nature be biopsied and examined histologically as soon as possible. Antibiotic therapy should be started, even if the blood culture samples are negative, when the pathology is compatible with septic vasculitis.

In summary, when patients present with fever, headaches, rash, and arthralgias, one should consider the diagnosis of chronic meningococcemia. Blood cultures may not become positive until days after admission. Initial diagnosis may be aided by histomorphological examination of the skin lesions.

REFERENCES

1. Dock W. Intermittent fever of several months duration due to meningococcemia. *JAMA* 1924;83:81.
2. Solomon H. Über Meningokokkusseptizämie Klin. Wochenschr, 1902;39:1045-1048.
3. Benoit FL. Chronic meningococcemia: Case report and review of the literature. *Am J Med* 1963;35:103-112.
4. Leibel RL. et al. Chronic meningococcemia in childhood: Case report and review of the literature. *Am J Dis Child* 1974;127:94-98.
5. Niklasson, Per-Magnus. Majsvanbon. Prolonged meningococcal septicemia. A report of four cases and a comparison with benign gonococcal septicemia. *Scand J Intest Dis* 1973; pp 29-33.
6. Frank SJ. Gomez RM. Chronic meningococcemia. *Milit Med* 1968;133(1):918-920.
7. Dineen JF, Paretz DM. Chronic meningococcemia. *Va Med Mon* 1975;102(11):957-958.
8. Tillotson JR. Holcomb JH. Chronic meningococcemia. *New York State J of Med* 1980; pp 976-977.

9. Habyrchak DR. Sporadic military meningococcal disease. *Southern Med Journal* 1981;74(2):154-156.

10. Wagner KR. Case of chronic meningococcemia in British Columbia. *Can Med Assoc J* 1985;132:821.

11. Angoff GH, et al. A case of chronic meningococcemia with unusual features. *Am J Med Sci* 1975;269(2):243-246.

12. Ognibene AJ, Dito WR. Chronic meningococcemia. *Arch Intern Med* 1964;114:29.

13. Hoagland RJ, Bartelloni P, Cataldo JR. Meningococcemia, cause of prolonged fever. *US Armed Forces Med J* 1960;11:190.

14. Hill WR, Kinney TD. The cuteneous lesions in acute meningococcemia. *JAMA* 1947;134:513.

15. Brown CL. The skin lesions in meningococcus septicemia. *Am J Dis Child* 1924;27:598.

16. Lever WF. *Histopathology of skin*, Ed. 2, Philadelphia. J.B. Lippincott Company, 1954; p 171.

17. Boger WP. Fulminating meningococcemia. *N Engl J Med* 1944;231:385.

18. Holmes KK, et al. Disseminated gonococcal infection. *Ann Intern Med* 1971;74:979.

19. Sorrell TS, et al. Vancomycin therapy for methicillin resistant staphylococcus aureus. *Ann Intern Med* 1982;97:344.

20. Duma RJ, et al. Streptococcal infections: A bacteriologic and clinical study of streptococcal bactermia. *Medicine* 1969;48:87.

21. Melnick JL. Enteroviruses. *In* Evans AS (ed): *Viral infections of Humans; Epidemiology and Control.* New York, Plenum Med Book Company, 1976; pp 163-207.

22. Fauci AS. The spectrum of vasculitis. *Ann Intern Med* 1978;80:660.

23. Cream JJ, et al. Schönlein-Henoch Purpura in the adult. *Q J Med* 1970;39:461.

24. American Heart Association. Jones criteria (revised) for guidance in the diagnosis of rheumatic fever. *Circulation* 1965;32:664.

25. Bukak JS, et al. Juvenile rheumatoid arthritis presenting in the adult as fever of unknown origin. *Medicine*, 1973;52:431.

26. Zimran A, et al. Recurrent Neisseria meningitides bacteremia. Association with deficiency of the eighth component of complement (C8) in a Sephardic Jewish family. *Arch Intern Med* 1984;144:1481.

27. Peterson BH, et al. Neisseria meningitidis and Neisseria gonorrheic bacteremia associated with C_6, C_7, C_8 deficiency. *Ann Intern Med* 1979;90:917-920.

28. Gewurz H, Suyehira LA. Complement *In* Rose NR, Freidman H, (eds) Manual Immunology. Wash DC American Society for Microbiology 1976; pp 36-47.

29. Densen P, Weiler JM, McLeod Griffiss J, Hoffman LG. Familial properdin deficiency and fatal meningococcemia. *NEJM* 1987;316(15):922-926.

30. Gilman AG, Goodman LS, Gilman A. *The pharmocological basis of Therapeutics.* MacMillan Publishing Co Inc 1980;6:1139.

31. McCrumb FR, et al. Chloramphenicol in the treatment of meningococcal meningitis. *Am J Med* 1951;10:696.

32. Bryan JP, et al. Comparison of ceftriaxone and ampicillin plus chloramphenicol for the therapy of acute bacterial meningitis. *Antimic Agent and Chemoth* 1985;28:361.

33. Guttler RB, et al. Effect of rifampin and minocycline on meningococcal carrier rates. *J Infect Dis* 1971;124:199.

34. Kuhns DW, et al. The prophylactic value of sulfadiazine in control of meningococcal meningitis. *JAMA* 1943;123:335.

35. Cooper ER, et al. Rifampin resistant meningococcal disease in contact patient given prophylactic rifampin. *J Pediatr* 1980;108:93-96.

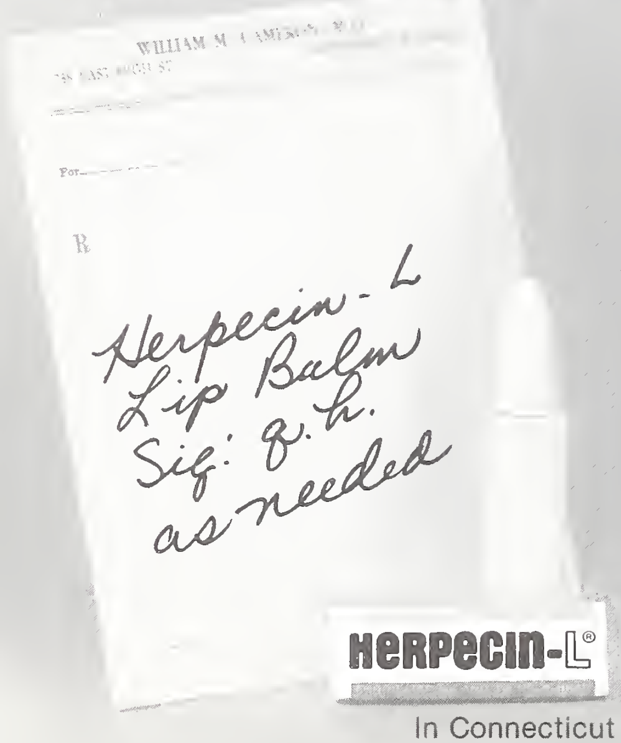
36. Beam WE, et al. The effect of Rifampin on the nasopharyngeal carriage of Neisseria meningitidis in a military population. *J Infect Dis* 1971;124:39.

37. Deal WB, Sanders E. Efficiency of rifampin in treatment of meningococcal carrier. *N Engl J Med* 1969;281:641.

38. Munford RS, et al. Eradication of carriage of Neisseria meningitidis in families. A study in Brazil. *J Infect Dis* 1974;129:644.

39. Fass RJ and Saslow S. Chronic meningococcemia. Possible role of I_gM deficiency. *Arch Intern Med* 1972;130(6):943-946.

Dx: recurrent herpes labialis



"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough.**" DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits.**" MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) **. . . response** was **dramatic. HERPECIN-L** . . proven **far superior.**" DDS, PA

"All patients claimed **shorter duration . . .** at **prodromal symptoms . . .** HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

Incidental Mirizzi Syndrome

ROBERTO J. FERNANDEZ, M.D., RONALD A. ZLOTOFF, M.D.
AND STEPHEN R. RUBENSTEIN, M.D.

ABSTRACT–The Mirizzi syndrome occurs when there is obstruction of the common hepatic duct (CHD) caused by a stone impacted in the cystic duct. Almost all patients with this syndrome seek medical attention for jaundice or cholangitis. We describe a case where the diagnosis was established in an asymptomatic individual.

The diagnosis may be suspected on the basis of sonographic or CT studies. However, direct cholangiography is necessary to define adequately the anatomy of the biliary tree. Treatment requires surgical exploration and removal of the impacted stone.

Introduction

Obstruction of the CHD as a result of an impacted stone in the cystic duct and its subsequent inflammatory response is a rare occurrence. The clinical syndrome was described in 1905 by Kehr,[1] but it was Mirizzi[2] who brought the condition to prominence in 1948 with his publication.

The Mirizzi syndrome includes the following features: 1) anatomical arrangement of the cystic duct such that it lies almost parallel to the CHD, 2) impaction of a gallstone in the cystic duct, 3) partial mechanical obstruction of the CHD by the stone or the associated inflammatory response, and 4) recurrent cholangitis or jaundice as a result of this obstruction. The diagnosis is difficult to establish without direct cholangiography. We describe a case of the Mirizzi syndrome in an asymptomatic patient during evaluation for a previous colonic carcinoma. The laboratory abnormalities included an isolated elevation of the alkaline phosphatase and gamma glutamyl transpeptidase (GGTP). This is an unusual presentation since most of the previously reported patients presented with clinical evidence of biliary tract disease. An endoscopic retrograde cholangio-pancreatogram (ERCP) demonstrated the typical anatomical appearance, and surgical intervention was effective in removing the impacted stone.

Case Report

This 75-year-old white male was well until he noted fatigue and a 10-pound weight loss. Physical examination was unremarkable except for the presence of occult blood in his stool. Flexible sigmoidoscopy was normal. Barium enema showed a constricting lesion in the ascending colon. A right hemicolectomy was performed and the lesion was found to be a Dukes B_2 poorly differentiated carcinoma. No radiation or chemotherapy was recommended. His hemoglobin was 9.7 g%; all other laboratory studies were normal, including the SGOT, bilirubin and, alkaline phosphatase.

He did well for nine months, but never regained weight; he visited his physician for follow-up evaluation. He had had no symptoms to suggest biliary tract disease and physical examination showed a thin, anicteric male with no abnormal findings. Laboratory studies showed a hemoglobin of 14.2g%; the SGOT was 190 u/l (normal 5-25 u/l) the alkaline phosphatase 2320 u/l (normal 0-90); the GGTP was 1425 u/l (normal less than 63), and the total bilirubin 1.4 mg.%.

A technesium sulfur colloid scan of the liver and spleen showed no abnormalities. A sonogram of the abdomen showed no stones in the gallbladder, but the CHD was dilated (1.4 cm) while the common bile duct was normal in diameter (1.1 cm). He was referred to a gastroenterologist who performed an ERCP. This showed lateral compression of the common bile duct at the level of the cystic duct, with dilatation of the proximal portion of the CHD. (Figure 1) The gallbladder and cystic duct could not be filled with contrast medium; injection of the pancreatic duct showed no abnormalities. On the basis of the ERCP findings, a laparotomy was performed. At surgery there was an inflammatory mass which involved the common hepatic and common bile ducts; initially this was thought to represent malignant tumor. However, on further exploration, a 1.5 cm stone was identified in the proximal portion of the CHD. It had eroded through the adjacent cystic duct initiating an inflammatory response. The stone was removed along with the gallbladder and cystic duct. A T-tube was placed in the CHD and an intra-operative cholangiogram (Figure 2) showed free flow of bile into the duodenum. The patient's post-operative course was uncomplicated, the alkaline phosphatase returned to normal, and the patient remains well twelve months later.

Discussion

Mirizzi, Argentinian surgeon and pioneer cholangiographer, initially described this problem as a "functional hepatic syndrome."[2] He suggested that an inflammatory process in the region of the cystic duct at its junction with the CHD caused spasm of the circular muscle fibers in the CHD. However, subsequent anatomical investigations, cholangiography, and manometric studies have failed to provide support for this concept of a functional sphincter.

Dietrich[3] demonstrated the importance of the anomalous anatomic arrangement of the cystic duct and the CHD. In a review of 120 operative cholangiograms, he found that 18% had a low insertion of the cystic duct such that a parallel course was present.

ROBERTO J. FERNANDEZ, M.D., Fellow; Department of Gastroenterology. RONALD A. ZLOTOFF, M.D., Attending physician; Department of Gastroenterology. STEPHEN R. RUBENSTEIN, M.D., Attending physician; Department of Medicine; all of the Waterbury Hospital Health Center, Waterbury, CT.

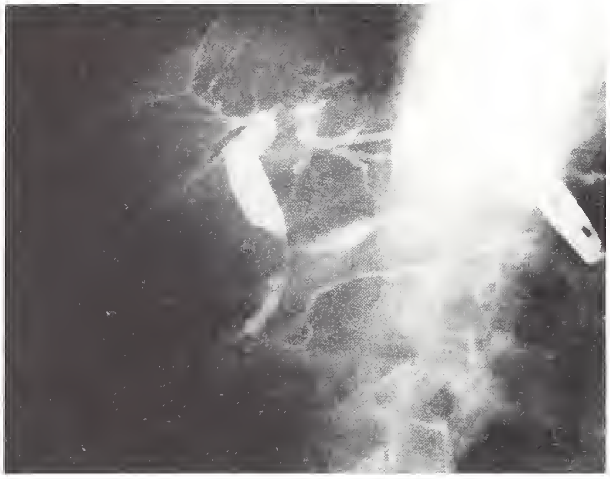


Figure 1

Direct cholangiography (ERCP) demonstrates lateral compression and proximal dilatation of the common hepatic duct. The common bile duct appears normal and the cystic duct and gallbladder did not fill with contrast.

A similar cholangiographic appearance has been observed with gallstones impacted in the neck of the gallbladder, causing partial obstruction of the CHD. Lateral compression of the CHD can also occur as a result of adenopathy in the *porta hepatis*, pancreatic tumors, pancreatic pseudocysts, hepatic tumors, carcinoma of the gallbladder, or primary cystic duct carcinoma. Koehler[4] described a case where medial compression of the CHD resulted from stone formation in a post-operative cystic duct remnant.

Cholangiography is the most accurate diagnostic study, although sonographic or CT scans can show some of the typical features.[5] These would include: 1) dilatation of the biliary system above the level of the cystic duct or gallbladder neck, 2) gallstone impaction in the region of the cystic duct, or 3) normal caliber of the common bile duct with concomitant dilatation of the CHD. Cholangiography is most commonly performed via ERCP techniques, although percutaneous transhepatic injection of the intrahepatic biliary system is also possible.

Surgery is the only effective therapy. Cholecystectomy, with removal of the cystic duct and entrapped stone is almost always necessary. More elaborate biliary drainage procedures are seldom needed and can be quite complicated because of the inflammatory process which is usually present. Endoscopic techniques for removal of cystic duct stones, including dissolution therapy, have not yet been described for this condition.

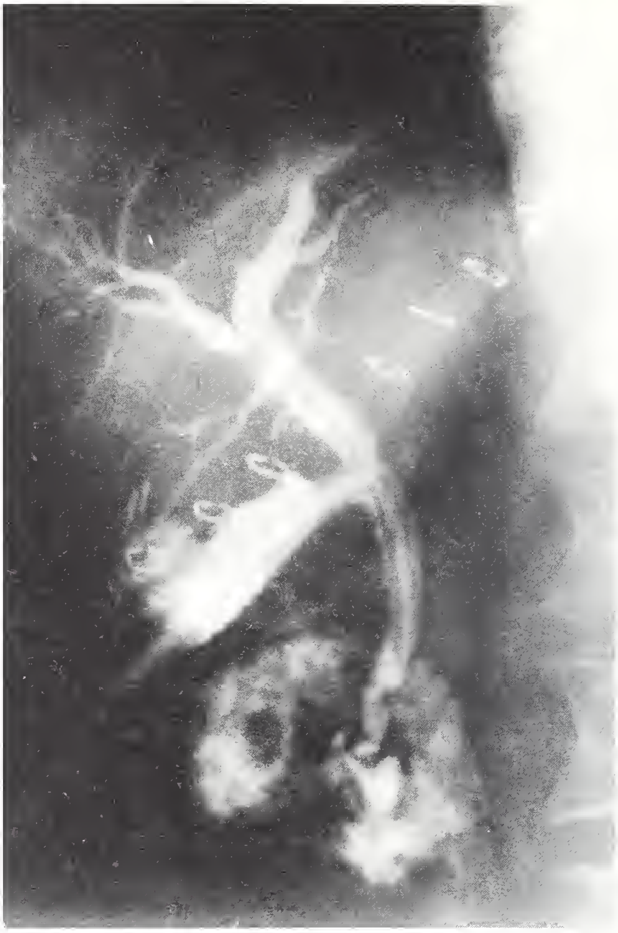


Figure 2

T-tube cholangiogram reveals patency of the common bile duct with free flow of contrast into the duodenum.

REFERENCES

1. Kehr D, Die in meiner Klinik geübte Technik der Gallenstein Operationen, mit einem Hinweis auf die Indekationen und die Dauererfolge. Munich: JF Lehman, 1905.
2. Mirizzi PL, Síndrome del conducto hepatico. *J Int Chir* 1948;8:731-775.
3. Dietrich KD, Die Hepatikusstenose bei Gallenblasenhals und Zystikussteinen (Mirizzi syndrome) Bruns Beitrage Klin Chir 1963;206:9-22.
4. Koehler RE, et al. Common hepatic duct obstruction by cystic duct stone: Mirizzi syndrome, *Am J Radiol* 1979;132:1007-1009.
5. Becker CD, Hassler H, Terrier F. Preoperative diagnosis of the Mirizzi syndrome: limitations of sonography and computed tomography. *Am J Radiol* 1984;143:591-6.

Leiomyosarcoma of the Vulva

MARIA P. LENAZ, M.S., M.D., T.C. NGUYEN, M.D., AND WILLIAM J. HEWETT, M.D.

ABSTRACT— Sarcomas of the vulva are rare. There have been approximately 150 cases reported in the world literature. They represent between 1.5-3% of malignant neoplasms of the vulva.

In this paper, we will present a case report of leiomyosarcoma of the vulva and brief literature review. The anterior vulvectomy specimen demonstrated two features, namely, a high mitotic count and an infiltrative growth pattern consistent with epithelioid smooth muscle tumors of the vulva; recurrence of the tumor was, therefore, anticipated.

Introduction

Leiomyosarcomas are mesenchymal tumors with a poor prognosis and a tendency to develop both local recurrences and disseminated hematogenous metastases.[1,2] In a study by DiSaia, Rutledge, and Smith,[3] 12 cases of sarcoma of the vulva were presented. Surgical therapy consisted of radical vulvectomy and bilateral inguinal lymphadenectomy, except in low grade malignancies where nodal involvement is rare; here wide local excision may be considered. Patients undergoing wide local excision are at risk of local recurrence and should be followed closely. Radiotherapy has proven of little value. Chemotherapy has value only in controlling metastatic disease.[3-9]

Sarcomas of the vulva occur most frequently in the labia majora, followed by the clitoris, periurethral, and pararectal area.[1,3,4]

We are reporting a case of a clinical recurrence of leiomyosarcoma of the vulva.

Case Report

The patient is a 58-year-old multiparous black female, five years postmenopausal, status post-excision of a vulva sarcoma localized to the mons pubis in 1984. The pathologic report at that time was consistent with a leiomyosarcoma or an epithelioid angiosarcoma. Re-excision with groin dissection revealed residual tumor in the operative site and negative nodes. The patient was then treated with radiation therapy. Early in 1985, she developed another lump in the same area which was again resected; she was seen again in December 1985 and September 1986, with recurrence in the same area.

Arising in front of the pubis was a 4 cm mobile nodule, adjacent to the surgical defect. The clitoris contained a 2 cm mobile nodule. There was scarring of both groins, but no enlarged lymph glands; the remainder of the gynecological examination was negative.

An anterior vulvectomy with an abdominal advancement closure was performed.

The postoperative period was notable for an anterior wound separation on day seven. She was discharged 25 days postoperatively.

Pathology

The resected vulvectomy specimen measured 15 x 9 x 3 cm in greatest dimension and contained a 3 cm suprapubic tumor nodule with a 2 cm satellite lesion close to the clitoris. Both lesions show a light tan, smooth, and glistening cut surface.

Microscopic sections showed a mixture of spindle and epithelioid cells extensively infiltrating the dermis and deep subcutaneous soft tissues. All surgical resection margins were free of tumor. The spindle component consisted of slightly plump cells arranged in fascicles of varying sizes, often intersecting at right angles (Figure 1). The nuclei were enlarged and hyperchromatic with multiple small nucleoli. Focally the tumor cells acquired an epithelioid appearance, with rounded cells containing eccentric nuclei and abundant eosinophilic cytoplasm with some vacuolation (Figure 2). There were degenerative changes in the form of myxoid areas, focal necrosis, and hemorrhage. Mitoses averaged up to five in ten high power fields. Ultrastructural examination revealed many cells with myoid differentiation. Peripherally located dense intermediate filaments with focal areas of condensation suggested the appearance of myofilamentous bands. Parallel light microscopic sections with Masson stain showed the presence of a light blueish cytoplasm corresponding to the fine intracytoplasmic intermediate filament structures with small focal peripheral reddish beaded structures corresponding to the condense myofilamentous material. The immunohistochemical staining profile (reactivity with vimentin and focal positivity with muscle specific actin, nonimmunoreactivity for Factor VIII antigen and S 100) strongly supported the myoid nature of the lesion (Figure 3).

Discussion

In general, the overall course of vulva sarcoma is influenced by the size and extent of infiltration of the primary

---

MARIA P. LENAZ, M.S., M.D., Chief Resident, Department of Obstetrics and Gynecology, Hartford Hospital, Hartford, CT. T.C. NGUYEN, M.D., Resident, Department of Pathology, Hartford Hospital, Hartford, CT. WILLIAM J. HEWETT, M.D., Director of Gynecologic Oncology, Department of Obstetrics and Gynecology, Hartford Hospital, Hartford, CT; Clinical Associate Professor of Obstetrics and Gynecology, University of Connecticut School of Medicine, Farmington, CT.

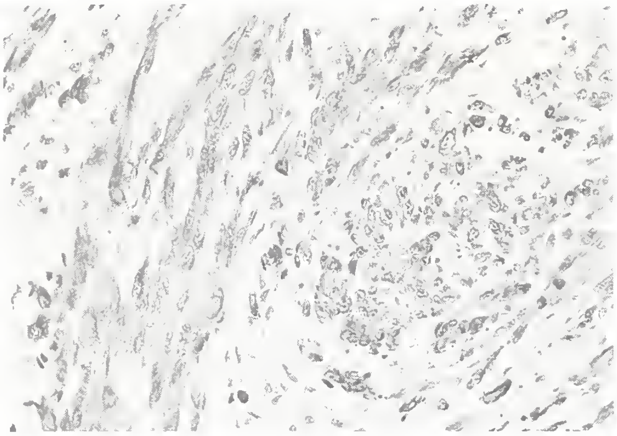


Figure 1

Vulvar leiomyosarcoma demonstrating right angle intersection of fascicles of tumor cells (x250).

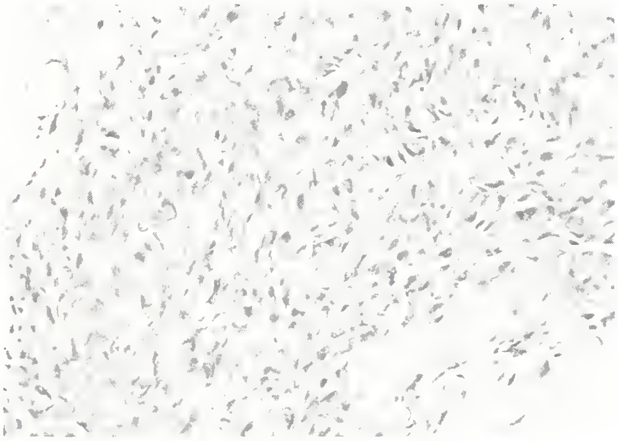


Figure 2

Epithelioid component of vulvar leiomyosarcoma (x250).

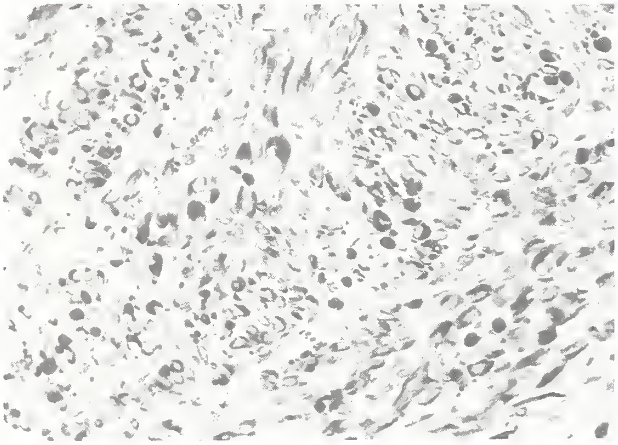


Figure 3

Vulvar leiomyosarcoma showing immunoreactivity with vimentin. Staining with muscle specific actin shows a lesser but identical distribution (x250).

tumor. Results of treatment are favorable when extensive or radical surgical procedures are employed soon after diagnosis.[4]

In Tavassoli and Norris's recent review of smooth muscle tumors of the vulva and vagina,[10] the histologic criteria that appear to correlate best with clinical recurrence included tumors greater than 5 cm in diameter, an infiltrative growth pattern and more then five mitoses in ten high power fields. Epithelioid smooth muscle tumors of the vulva are even more rare and are generally regarded as behaving more aggressively than ordinary leiomyosarcomas. Since this tumor demonstrated two of these features, namely, a high mitotic count and an infiltrative growth pattern, it was not surprising to observe clinical recurrences. However, it has been surprising that the recurrences have been local and that she has not developed dissemination.

REFERENCES

1. Audet-LaPointe P, Paquin F, Guerard M, et al: Leiomyosarcoma of the vulva: A case report. *Gynecol Oncol* 1980;10:350-355.
2. Shen J, D'Ablain G, Morrow C: Alveolar soft part sarcoma of the vulva: report of first case and review of literature. *Gynecol Oncol* 1982;13:120-128.
3. DiSaia P, Rutledge F, Smith J: Sarcoma of the vulva: report of 12 patients. *Obstet Gynecol* 1971;38:180-184.
4. Davos I, Abell M: Soft tissue sarcomas of the vulva. *Gynecol Oncol* 1976;4:70-86.
5. Ulbright T, Brokaw S, Stehman F, Roth L: Epithelioid sarcoma of the vulva: evidence suggesting a more aggressive behavior than extragenital epithelioid sarcoma. *Cancer* 1983;52:1462-1469.
6. Huey G, Stehman F, Roth L, et al: Lymphangiosarcoma of the edematous thigh after radiation therapy for carcinoma of the vulva: case reports. *Gynecol Oncol* 1985;20:394-401.
7. Hall D, Grimes M, Goplerud D: Epithelioid sarcoma of the vulva: case report. *Gynecol Oncol* 1980;9:237-246.
8. Soltan M: Dermatofibrosarcoma protuberans of the vulva: case report. *Brit J Obstet Gynecol* 1981;88:203-205.
9. Bock J, Andreasson B, Thorn A, et al: Dermatofibrosarcoma protuberans of the vulva. *Gynecol Oncol* 1985;20:129-135.
10. Tavassoli FA, Norris HF: Smooth muscle tumors of the vulva. *Obstet Gynecol* 1979;53:213-217.

Fifty-five MPH Speed Limit and Traffic Related Mortality: To Change or Not to Change

ELIZABETH T. DRUM, M.D., JOHN McELLIGOTT, M.D. AND L. PETER FIELDING, M.B.

ABSTRACT–The enactment of Highway Bill HR2 in April 1987 allows individual states to raise the speed limit on certain rural interstate highways from 55 to 65 mph. The controversies surrounding the issue of change in highway speed limit prompted us to conduct a 20-year review of death rates from motor vehicle accidents. National mortality rates were compared with those in Connecticut.

The 55 mph speed limit, established in 1974, was associated with a substantial and rapid decline in motor vehicle accident (MVA) deaths over a 12-month period. (national *v* Connecticut data: 16.4% and 22.9% respectively.) Although the overall pattern of highway deaths from 1964 to 1984 shows an overall national decline (25.0 to 19.6 deaths/100,000 population), there has been a rise in Connecticut during the same period (11.7 to 14.8 deaths/100,000 population). This corresponds to an average decrease in 1.1% per annum nationally but a 1.3% per annum increase in Connecticut.

We conclude that before there is any change in highway speed limit in Connecticut, both delegates to the General Assembly and the public-at-large should consider carefully the implications of the currently deteriorating highway mortality statistics in our state.

Introduction

The control of vehicle speed limit on our highways started in the beginning of the century and was determined by individual states. The federal government imposed a 35 mph speed limit to conserve rubber and gasoline during World War II, but this regulation lapsed a few years later. In 1973, as a consequence of the Middle East oil embargo, the United States Congress enacted PL 93-643 which included a 55 mph national speed limit to which all states conformed by March 1974.[1] This law has been in effect since that time until April 1987 when, after considerable debate, Senate Bill HR2 was passed into law which enables states to raise the maximum speed limit to 65 mph on certain rural highways.

The controversies surrounding this issue stimulated us to review the fatality statistics between 1964-84 on a national level and for the State of Connecticut, in order to obtain some data which may be relevant to any proposed increase in the speed limit in Connecticut.

Methods

A 20-year review of motor vehicle traffic fatalities was undertaken from 1964 to 1984. The data was obtained from the National Safety Council and the State of Connecticut Departments of Transportation Statistics and Health Services. Both national and Connecticut motor vehicle accident (MVA) death rates were reviewed for each year and compared to population density.[2-4]

The rate of change in MVA mortality figures was calculated from the slope of the best fitting line using the method of least squares. The annual change in MVA deaths was calculated by dividing the total change by 20 years. Kinetic energy was calculated from the formula $KE=1/2MV^2$.

Results

On a national level there has been a decrease in absolute number of MVA fatalities per annum from 47,700 to 46,200 between 1964-1984. By contrast in Connecticut, there has been an increase in fatalities per annum from 330 to 470 in the same period. These figures correspond to a change in MVA death rate per 100,000 population in the nation from 25.0 to 19.6 and in Connecticut of 11.7 to 14.8 (Figure 1). The relatively small decrease in absolute number of national fatalities represents a larger decrease MVA death *rate* because of increases in the U.S. population.

Between 1973 and 1974 the absolute number of deaths nationally decreased from 55,511 to 46,402, a total of 9,109. It should be noted that the 1973-1974 abrupt drop was in marked contrast to the 1964-1973 period which showed a gradual increase in absolute number of deaths from 47,700 in 1964 to 55,511 in 1973. From the low of 46,402 deaths in 1974 the ten-year period from 1974-1984 showed a gradual increase to a maximum of 53,524 in 1979 followed by a gradual decrease to 46,200 in 1984.

ELIZABETH T. DRUM, M.D., Resident, General Surgery. Department of Surgery, St. Mary's Hospital. JOHN MCELLIGOTT, M.D., Faculty member, Research & Development, St. Mary's Hospital. L. PETER FIELDING, M.B., Chief of Surgery, St. Mary's Hospital, Waterbury, CT; Clinical Professor of Surgery, Yale University School of Medicine.

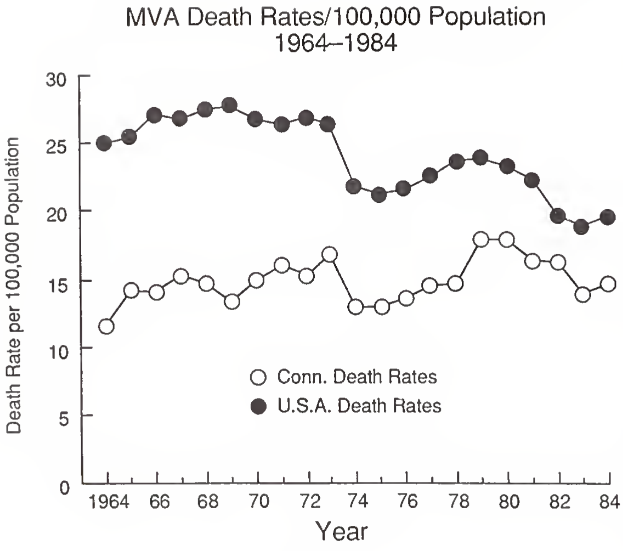


Figure 1

The twenty-year trend for MVA death rates for 100,000 population, calculated by the best fit line using the method of least squares, shows a slope for national figures of −0.37 but, by contrast, for Connecticut the gradient of this slope was +0.11. This corresponds to an average decrease of 1.1% per annum nationally but an average increase of 1.3% per annum for Connecticut. Thus, despite improving national statistics, the figures for Connecticut have deteriorated but have remained less than the national norm.

Discussion

The recent law passed by the U.S. Congress allows states to raise the speed limit on certain highways and led us to review the MVA fatalities in our own state to provide some evidence which might contribute to the public debate on this subject. The Insurance Institute for Highway Safety, the National Safety Council, and the Transportation Research Board of the National Research Council[5,6] have all endorsed a policy of maintaining the current 55 mph speed limit. Other investigators have examined the medical impact of the speed limit and have made similar recommendations,[7-9] and some pediatricians and surgeons have insisted that maintaining the current speed limit is an important safety measure.

However, we should differentiate between the true causes of MVA's and those measures which may reduce the overall damaging effect of an accident once it has occurred. A few of these "true causes" of MVA's cannot be manipulated or controlled; for example, "freak accidents" or "acts of God." Many others are associated with the physical conditions associated with driving, including highway design, condition of roads, car construction, and safety devices (e.g., seatbelts, inflatable pillows, etc.). A third category of "true causes" of MVA's concerns the whole field of operator-dependent factors including fatigue, inexperience, carelessness, and, above all, drug and alcohol abuse.

The National Highway Safety and Traffic Administration records "causes" of motor vehicle accidents. For each accident, all contributing causes are listed and none is ranked as the primary cause. However, speed "in excess of conditions" is the most commonly reported, and alcohol use is estimated to be involved in 50-55% of all motor vehicle accidents.[6]

We feel that it is doubtful that "speed" of itself is an independent cause of accidents, but rather it plays a role to compound other factors in accident causation. More importantly, speed contributes to the total amount of damage sustained in a particular accident. The kinetic energy of a moving body is proportional to the square of the velocity, and, because the eventual amount of damage is proportional to kinetic energy released, it follows that accident damage increases very rapidly with small increases in speed. Thus, the 18% increase in vehicle speed from 55 to 65 mph is equivalent to a 40% increase in kinetic energy contained within the vehicle.

Speed is also related to the effects of accidents for several other reasons. First, at higher rates of speed, cars move greater distances in fixed periods of time. This means that the distance required to stop by breaking increases with increasing speed. Second, ability to steer around curves is impaired at higher speeds. Third, the possibility of a fatality increases exponentially as the change of velocity during the crash increases. (The change of velocity during the crash equals the change from the initial impact speed to zero.)[1] Variance in speed has also been linked to safety more than just speed alone. The greater the variation in speed between drivers, the more passing and lane-changing there is, adding to the likelihood of accident.[1]

If it is agreed that speed is a contributing factor to the amount of damage resulting from an accident rather than its cause, it may be preferable to permit an increase in speed limit but simultaneously to increase measures which will diminish some of the true causes of accidents, e.g., drinking and driving.

It could be argued that such a strategy might allow an increased personal freedom for the majority but would require a reduction of "personal freedom" by those who take themselves or their vehicles out onto the highways in an unfit state. However, in the absence of measures to reduce the true causes of accidents, an increase of speed limit on our roads can be expected to result in a statistically significant rise in mortality and morbidity after motor vehicle accidents. We postulate that the reduction of 9000 deaths in the United States which occurred from 1973-1974 could be reciprocated if the speed limit were raised by a similar amount. We feel that this conclusion is of major significance for the state of Connecticut because we have already seen a rise in MVA and fatality figures in recent years.

A recent study in *The New England Journal of Medicine*[10] indicates that MVA mortality rate is inversely correlated with population density. Factors contributing to this may include increased distance to emergency facilities in rural settings, poorer quality roads in areas of low population density (as highway design standards are determined by volume of traffic), and increased use of public transportation in higher population density areas. This study is confirmed by statistics in Connecticut. Higher MVA mortality rates have been consistently reported in rural western states; this has been attributed also to increased use of utility vehicles, such as jeeps and pickup trucks, and to less consistent use of seat belts. It has been estimated that 4.0% of vehicles exceed 65 mph on urban interstate highways compared to 8.8% on rural interstate highways.

A 1982 Gallop Poll showed that 81% of the population in the Northeast supported the 55 mph speed limit as opposed to 75% in the Midwest, 72% in the West, and 70% in the South.[1]

Reasons for the increasing mortality rate in Connecticut are harder to define. It may be related to an increasing population in a small state with limited miles of roadway. Recent trends in real estate may be increasing the number of people commuting to work, thereby increasing the number of miles driven. And finally, Connecticut may have more than the average number of drivers who drive under the influence of drugs or alcohol.

Many claim that the average "cruising speed" on our highways is 5-10 mph higher than the legal speed limit. It may be, therefore, that many drivers are already traveling at cruising speeds of around 65 mph. If the state recommends an increase in the legal speed limit, the effect on average cruising speed on principle highways remains uncertain.

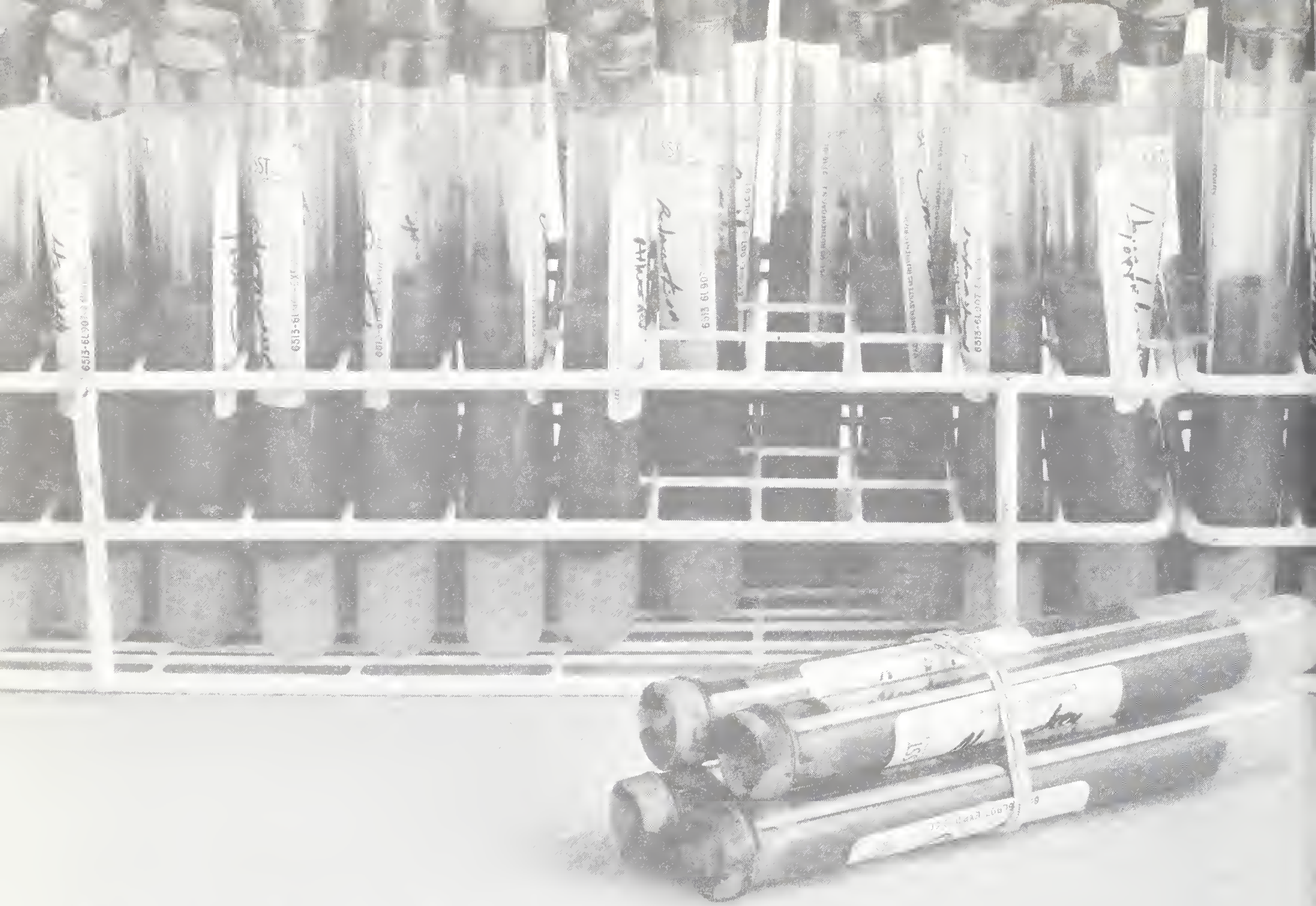
Therefore, in the event that Connecticut legislators increase highway speed limits, we recommend, first, that the state institute a review of average cruising speed on the main highways both before and after such a change and second, if the legislature proceeds in this direction, major efforts should be made to reduce the true causes of accidents on our highways and to take stringent action in regard to the association of alcohol, drug abuse, and driving.

Currently, Connecticut legislators have decided to retain the 55 mph limit; this, however, is not a unanimous decision. Those lobbying groups and representatives who wish to take credit for an increase in our personal freedom by supporting an increase in highway speed limit should also support much more vigorous action to curb the freedoms of those few who occupy our roads in an unfit state.

REFERENCES

1. 55: A Decade of Experience. Transportation Research Board, Special Report 204. National Research Council, Washington, DC, 1984.
2. "Accident Facts" Chicago, National Safety Council, 1985, p 59.
3. Motor Vehicle Accident Deaths, Department of Transportation Statistics, State of Connecticut, 1964-1984.
4. Estimated Population in Connecticut. State of Connecticut. Department of Health Services, 1964-1984.
5. O'Neill B: Statement of executive vice president, Insurance Institute of Highway Safety. Forum on 55 mph Speed Limit. Chicago, 1985.
6. 55 mph Information Sheet: National Safety Council. Chicago, 1986.
7. Committee on Accident and Poison Prevention. The 55 miles per hour maximum speed limit. *Pediatrics*, Feb 1981;67(2):304.
8. Alyons D, Perry JF: Impact of speed limit: I. Chest injuries, review of 966 cases. *J Thorac Cardiovasc Surg*, 1982;83(4):519-522.
9. Mucha P: Trauma prophylaxis: Every physician's responsibility. *Mayo Clinic Proc*, 1986;61(5):388-391.
10. Baker SP, Whitfield RA, O'Neill B: Geographic variations in mortality from motor vehicle crashes. *N Engl J Med*, 1987;316(22):1384-87.

Acknowledgements: Our special thanks are due to Representative Edith Prague (State Representative, 8th District); Jim Fasalaro, Office of Legislative Research, Hartford; Charles Casalla, Department of Transportation, Statistics, Hartford; Lt. Kenneth H. Kirschner, State of Connecticut, Department of Public Safety, Division of State Police; Denise Jernigan, Connecticut State Library; Martin Green, St. Mary's Hospital Library; Ronald Franzino, M.D.



HIV Positive Confirmed. Then What?

AIDS is tough to treat. Ruthless to an increasing patient population, it challenges physicians and nurses as never before in their commitment to quality care.

The Spellman Center for HIV-Related Disease at St. Clare's Hospital and Health Center in New York City, accepts the challenge posed by AIDS and HIV infection. The first facility in the tri-state region to devote its resources solely to the care of AIDS patients, the Spellman Center designates its highest priority as compassionate patient care. A dedicated staff provides comprehensive medical, nursing, psychosocial, and dental treatment in an atmosphere that is warm and understanding.

The Spellman Center—a 60-bed Acute Care Unit, Emergency Service, Outpatient, Ambulatory Infusion and Dental Clinics—accepts referrals of patients with CDC-confirmed AIDS or ARC (AIDS-related complex), and those who are seropositive for HIV. Spellman also reaches out to offer testing, counseling and treatment to persons at risk for AIDS.

If you need consultation concerning your patients, or more information, please call Dr. Debra Spicehandler, the Medical Director, at (212) 459-8409.

The Spellman Center also maintains an information hotline for patients with questions about AIDS: 1-800-433-AIDS.

The Spellman Center
for HIV-Related Disease
A Designated AIDS Treatment Facility
St. Clare's Hospital and Health Center

415 W 51st St
New York, NY 10019

An Affiliate of New York Medical College

Important Advances in Clinical Medicine

Urology

The Scientific Board of the California Medical Association presents the following inventory of items of progress in urology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in urology that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Urology of the California Medical Association and the summaries were prepared under its direction.

New Developments in Diagnosing and Treating Erectile Impotence

The understanding of erectile physiology and the treatment of erectile dysfunction continue to be dynamically expanding areas of urologic knowledge.

With a better understanding of the physiology and more sophisticated testing techniques, it has been determined that in 85% of men with impairment for more than a year, there is an organic origin (as opposed to 90% a psychological one, as believed historically).

Organic impotence is due to "failure to initiate" (neurologenic), "failure to fill" (arteriogenic) or "failure to store" (corporal venous leakage). Diagnostic tests are directed toward identifying which of these is the origin so that the most desirable therapy can be selected.

Failure to initiate (neurogenic cause) is generally nonreversible, though the lack of neurologic initiation can be overridden by direct intracorporal pharmacologic stimulation (papaverine hydrochloride and phentolamine mesylate).

Intracorporal pharmacologic stimulation can also be successful in cases of "failure to fill" (atherosclerotic occlusive disease) because the long duration of the stimulus results in filling even with diminished flow. It can also be successful with "failure to store" because the stimulus creates enough flow and tumescence to reduce the venous leak.

Failures to fill and to store are both amenable to a reconstructive vascular operation, which has received a great deal of attention as the procedures—arterial revascularization and venous leak ligation—have shown increased success.

Patients with venous leak or "failure to store" present an especially interesting problem. They most often have had trauma, atherosclerotic occlusive disease or Peyronie's disease. To establish the diagnosis, a new test—dynamic infusion cavernosometry and cavernosography—was developed. Constant penile infusion is done during pharmacologically induced (papaverine and phentolamine) tumescençe that should approximate the physiologic state of maximal corporovenous occlusion. If the corporal body pressure falls by more than 30 mm of mercury in 30 seconds (from a beginning pressure of more than 150 mm of mercury), it is diagnostic of a venous leak. The location of the leak is then identified radiographically by intracorporal infusion of dilute radiopaque contrast solution so that the most appropriate surgical procedure can be selected. The procedures of venous ligation, reduction cavernoplasty or dorsal vein arterialization (Virag V operation) have about 60% success in restoring normal erections.

For those whose erectile function cannot be satisfactorily restored using nonoperative means, a reconstructive vascular operation offers an alternative to penile prosthesis, particularly for those patients who are concerned emotionally about the idea of an "artificial erection" produced by a prosthesis.

Harin Padma-Nathan, M.D.
Boston

Reprinted from *The Western Journal of Medicine*, August, 1987.

REFERENCES

Padma-Nathan H, Goldstein I: Corporal leakage syndrome: The role of dynamic infusion cavernosometry and cavernosography (DICC) (Abstr). J Urol Apr 1987, 137 (pt2):184A.

Padma-Nathan H, Goldstein I, Krane RJ: Evaluation of the impotent patient. Semin Urol Nov 1986, 4:225-232.

Padma-Nathan H, Payton T, Goldstein I: Treatment for organic impotence: Alternatives to the penile prosthesis—Parts 1 and 2, American Urological Association Update Series, Lessons No 11 and 12, Vol 6. Houston, American Urological Association 1987, pp 1-7.

The Continent Urinary Diversion

The search for a satisfactory urinary diversion has intrigued and plagued urologists for more than a century. Ideally such a diversion should duplicate the function of the bladder in being able to effectively collect and store urine without an external appliance, permit emptying under voluntary control, preserve renal function and maintain an optimal quality of life.

The most popular urinary diversion has been the refluxing ileal conduit, which requires an external collecting appliance. For many years the search has continued for a more desirable diversion. Not only do patients with ileal conduits have a high frequency of late complications (chronic pyelonephritis, stones and renal failure) from long-standing reflux, but the psychosocial stigma associated with wearing an appliance can have a pronounced impact on body image and may even deter patients from undergoing a needed radical cystectomy.

Over the past decade there has been heightened interest in forms of diversion that prevent reflux and are continent so that the external appliance is eliminated. The success of these diversions has improved with the development of techniques to transform bowel segments into urinary reservoirs and the creation of functioning urinary sphincters. Various diversion techniques have evolved worldwide, differing by the type of reservoir used, the method of antireflux protection and the continence mechanism. Such names as Kock, Camey, Mainz and Mitrofanoff have been used to identify some of the more commonly done procedures.

The Kock pouch is the most desirable continent diversion because the pressure within the created reservoir remains extremely low, even with volumes of as much as 1,000 ml, and there are no pressure spikes from bowel smooth muscle contraction (a frequent cause of incontinence in other types of continent diversions). Intussuscepted small bowel afferent and efferent one-way nipple valves prevent urine reflux to the kidneys and urine leaking from the pouch. If these valves are not competent, revision may be necessary, though revision rates are decreasing as technical innovations are perfected.

For those patients whose general condition and prognosis permit them to consider the aesthetic and body image advantages of a continent urinary diversion, the Kock pouch appears to be an attractive alternative.

Stuart D. Boyd, M.D.
Los Angeles

REFERENCES

Boyd SD, Skinner DG, Lieskovsky G: The continent ileal reservoir (Kock pouch). Semin Urol Feb 1987, 5:15-27.

Kock NG, Nilson AE, Nilsson LO, et al: Urinary diversion via a continent ileal reservoir: Clinical results in 12 patients. J Urol Sep 1982, 128:469-475.

Olsson CA: Continent urinary diversion (Editorial). Semin Urol Feb 1987, 5:1-2.

Ureterorenoscopy

Transurethral endoscopy of the upper urinary tract has become a routine part of most urologic practices. The technical advances of increasingly smaller rigid and flexible endoscopes with high-resolution lenses and channels sufficient for irrigation and the passage of diagnostic and therapeutic instruments have opened the door of nonincisional access to the upper urinary tract. It is obvious that the therapeutic options offered by direct visualization have led the greatest clinical impact. The options include stone extraction, catheter or stent passage and removal of foreign bodies.

Rigid transurethral ureteroscopy is done with instruments varying between 8.5 and 12.5 French. Following dilation of the ureterovesical junction, the ureteroscope is passed through the ureteral orifice and up the ureter under direct vision to the point of interest. Success rates for passage are above 95%, with failures due to anatomic limitation (ureteral angulation or fixation). The successful extraction of ureteral stones has improved dramatically. Initially only 60% of stones could be removed ureteroscopically, but now stones in the lower ureter can be removed in more than 90% of patients, and those in the upper ureter can be considered for removal. Ureteroscopic stone extraction or disintegration complements other forms of nonsurgical stone removal. Stones below the rim of the bony pelvis cannot routinely be treated with current extracorporeal shock-wave lithotriptors or percutaneous methods. But this region, the most common site for ureteral stones to lodge, is ideally located for ureteroscopic access. When a stone is large or resists extraction, transureteroscopic lithotripsy (stone fragmentation) by ultrasonic electrohydraulic or pulsed-dye laser can be done.

Flexible ureteroscopes, available for 25 years, have finally been perfected to a clinically useful state. Those that are not actively deflectable simply follow the ureter and thus are useful more for diagnostic than therapeutic indications. The deflectable flexible ureteroscope just now becoming commercially available promises more frequently successful access to the upper urinary tract and the ability to visualize and obtain a biopsy of peripheral collecting system lesions and extract or disintegrate calyceal stones. Significant complication rates for those with experience have decreased to about 4% with less than 1% of those cases requiring an open surgical procedure. As with any new technique, a learning curve exists, and complication rates will diminish and success rates increase as a surgeon gains experience.

Transurethral ureteroscopic procedures (diagnostic and therapeutic) have become standard clinical practice and have saved many patients the morbidity of open surgical procedures to accomplish the same goal.

Jeffrey L. Huffman, M.D.
Los Angeles

REFERENCES

Biester R, Gillenwater JW: Complications following ureteroscopy. J Urol 1986, 136:380-382.

Huffman JL, Bagley DH, Lyon ES (Eds): Ureteroscopy. Philadelphia, WB Saunders, 1987.

Huffman JL, Bagley DH, Lyon ES, et al: Endoscopic diagnosis and treatment of upper tract urothelial tumors. Cancer Mar 1985, 55:1422-1428.

Stackl W, Marberger M: Late sequelae of the management of ureteral calculi with the ureterorenoscope. J Urol 1986, 136:386-389.

Integrated Management of Urinary Stone Disease

The simplicity, efficacy and relative lack of morbidity of extracorporeal shock-wave lithotripsy (ESWL) in destroying kidney and ureteral stones have revolutionized "surgical" treatment methods since it was first introduced in 1980. Urologists now simply place patients in the treatment machine, aim the shock wave via the sighting cross hairs and destroy the stone in less than 50 minutes. Efficacy? More than 80% of patients are stone-free within three months, and fewer than 30% have significant pain while passing the fragments. Perirenal hematoma, the worst complication noted to date, occurs in 1 of every 400 patients. There are very few other complications of significance. Hence, it is clear that ESWL functions remarkably well.

The success of this procedure and other relatively noninvasive stone-removal techniques (percutaneous nephrostolithotomy and transurethral ureteroscopic lithotripsy) have permitted the elimination of most stones without an open surgical procedure.

Each of these procedures has specific areas of strength where its use is preferable. ESWL is most effective for renal stones, but can be used for ureteral stones above the sacroiliac joint if there is enough fluid around them to transmit the the shock wave and permit fragmentation, or if they can be pushed back up into the kidney for disintegration. Percutaneous nephrostolithotomy is used to debulk staghorn stones, to remove those poorly fragmented by ESWL because of hardness (cystine) and to eliminate stones in poorly draining calyces (dependent, or with narrow infundibulae). Transurethral urteroscopic lithotripsy is addressed in another of this series of epitomes.

Does this mean we need not worry about preventing renal stone disease? Hardly! Even with these new treatment methods, there can be real compromise from the stone, from the treatment or from complications of either, and it is certain that a kidney will occasionally be irrevocably damaged.

In view of this, it is important that we prevent recurrences whenever possible. Nearly 80% of patients with stones have a definite metabolic abnormality that can be identified and treated. Diseases such as hyperabsorption or renal leak hypercalciuria, hypomagnesiumuria, hypocitruria and so forth respond to treatment in more than 80% of patients—the same rate of stone prevention as is the success rate of the newer methods of surgical treatment of stone.

After a three-month recovery period, the patient has a metabolic evaluation and a preventive program is prescribed that may include increased fluids, dietary advice or drug therapy (or all of these).

While ESWL and the endourologic procedures represent "miracles" of medical technology that significantly reduce morbidity, prevention that avoids morbidity altogether is clearly the best for patients.

George W. Drach, M.D.
Tucson

REFERENCES

Drach GW: Urinary lithiasis, In Walsh PC, Gittes RS, Perlmutter AD, et al (Eds): Campbell's Urology, 5th Ed. Philadelphia, WB Saunders 1986, pp 1093-1190.

Drach GW, Dretler S, Fair W, Et al: Report of the United States Cooperative Study of Extracorporeal Shock Wave Lithotripsy. J Urol Jun 1986, 135:1127-1133.

Preminger GM, Peterson R, Peters PC, et al: The current role of medical treatment of nephrolithiasis: The impact of improved techniques of stone removal. J Urol Jul 1985, 134:6-10.

Recent Advances in Diagnosing and Treating Prostatic Carcinoma

Prostatic carcinoma, the third leading cause of cancer death in men, is completely silent when confined to the prostate. Disappointingly, only 5% to 10% are identified—by digital rectal examination or prostatectomy for obstruction—while curable.

An exciting, new technology, transrectal ultrasonography of the prostate, holds the promise of identifying nonpalpable prostate cancer, and ultrasound-guided needle biopsy assures sampling from a suspicious area.

Autopsies of a large number of men who died from other causes have shown silent, unsuspected prostate cancer in 30% of men in their 50s, 35% in their 60s and 70% in their 70s.

With this high incidence, it is clear that much more sensitive screening methods are mandatory if we are to identify many more while potentially curable.

Total prostatectomy remains the treatment of choice for curable prostate cancer because survival exceeds that with external beam or interstitial irradiation and approximates normal age-corrected life expectancy.

The development of a nerve-sparing operation that preserves potency in 70% of patients has, along with the availability of successful penile prostheses, practically eliminated impotence as a major drawback of surgical treatment. Pelvic lymphadenectomy is done initially for staging purposes (no therapeutic value has been shown).

If rapid frozen section shows metastasis to nodes, surgical cure is impossible and total prostatectomy is aborted.

Serum prostate-specific antigen is a newly identified, more accurate tumor marker for monitoring tumor burden. Both prostate-specific antigen and serum prostatic acid phosphatase emanate from the prostate cell, so they are a function of neoplastic quantity (not location).

But neoplastic cells that severely dedifferentiate may be unable to produce acid phosphatase, resulting in a spuriously low prostatic acid phosphatase level even with extensive tumor burden. Prostate-specific antigen, generally less affected by dedifferentiation, promises to more accurately reflect the quantity of neoplastic cells. Unfortunately, levels can be elevated in some benign conditions, such as benign prostatic hypertrophy and prostatitis.

Two new permutations of antiandrogen treatment are now available. Leuprolide acetate (Lupron), a luteinizing hormone-releasing hormone agonist, produces "medical orchiectomy" by eliminating luteinizing hormone release, which secondarily eliminates testicular androgen production while preserving the testicles for those who wish to retain them for psychological reasons, and it avoids the increased thromboembolic and cardiovascular complications of estrogen therapy. Drawbacks of leuprolide therapy include its cost (more than $270 a month) and the necessity that it be given subcutaneously by daily injections.

Ketoconazole (Nizoral), the oral anti-*Candida* agent, has been found in higher doses to block cholesterol uptake into the hormone metabolic cycle, resulting in a substantial reduction of androgen and androgen precursors. A dose of 400 mg given three to four times a day suppresses total and free testosterone to far below anorchidic levels and frequently in our patients has elicited an additional substantial remission. The dose can be titrated against testosterone levels, and the occasional case of gastrointestinal intolerance can be controlled with anti-nausea agents given shortly before the ketoconazole.

Arthur L. Dick, M.D.
Los Angeles

REFERENCES

Franks LM: Latent carcinoma of the prostate. J Pathol Bacteriol 1954, 68:603-616.

Lee F, Gray JM, McLeary RD, et al: Transrectal ultrasound in the diagnosis of prostate cancer: Location, echogenicity, histopathology and staging the prostate. Prostate 1985, 7:117-129.

Trachtenberg J: Ketoconazole therapy in advanced prostatic cancer. J Urol Jul 1984, 132:61-63.

Lasers in Urology

Certain indications for using lasers in urology have emerged, whereas areas have been identified in which lasers appear to offer no advantages over alternative treatment. Both carbon dioxide and neodymium-YAG (yttrium-aluminum-garnet) lasers have provided excellent therapeutic and cosmetic results in the treatment of condylomata acuminata of the external genitalia. A neodymium-YAG laser can be used effectively against selected squamous cell carcinomas of the penis, and its use may avoid the need for partial penectomy in some patients. Some of the early promise that lasers showed in the treatment of urethral strictures has not been realized. Also, the currently available wavelengths have not been of benefit in treating prostatic hypertrophy.

Neodymium-YAG laser treatment continues to offer some practical advantages over electrocautery resection in the treatment of superficial bladder cancer. Flexible instruments can be used, bleeding is not encountered, Foley catheters are not used and anesthesia is not necessary in most patients. The impact of lasers on the recurrence rate of superficial bladder cancer remains uncertain.

Minimally invasive bladder cancer can be eradicted through transmural necrosis produced by a neodymium-YAG laser but results in tumors that invade the deep muscle of the bladder are relatively unimpressive. Currently, the use of lasers should not be considered an alternative to doing cystectomy, but may be useful in patients who are not candidates for a radical operation because of advanced age or poor health.

Experience with lasers in treating lesions of the upper urinary tract through ureteroscopes or the percutaneous route is limited. Lasers have been used to extend the margins of resection after a partial nephrectomy for hypernephroma.

A pulsed-dye laser has recently been approved by the Food and Drug Administration for transurethral ureteroscopic disintegration of ureteral calculi. It offers some advantages over ultrasonic disintegration (can be used through a flexible ureteroscope) and electrohydraulic lithotripsy (no risk of ureteral wall burn).

J.A. Smith, Jr, M.D.
Salt Lake City

REFERENCES

Smith JA, Jr (Ed): Lasers in Urologic Surgery. Chicago, Year Book Medical Publishers, 1985.

Stein BS, Kendall AR: Lasers in urology. Urology 1984, 23(suppl):411-416.

Ultrasonography in Pediatric Urology Patients

Pediatric urology has incorporated many advances and innovations from other disciplines in recent years, and many sophisticated surgical procedures have revolutionized the treatment of such classic urologic problems as hypospadias, bladder exstrophy and spinal dysraphism.

One of these advances from another field has been the development of high-resolution real-time ultrasound techniques, which have afforded multiple benefits to pediatric urologists and their patients. For children, the studies are noninvasive, cause no trauma or discomfort (no needles or catheters) and can be repeated serially as necessary without accumulating radiation exposure. For physicians, the substitution of high-resolution ultrasonography eliminates the possibility of radiopaque media-induced allergy and hyperosmolar tissue damage from extravasation.

High-resolution ultrasonography can accurately evaluate abnormal adrenal glands, the renal parenchyma and collecting system, the ureters and the bladder. It is especially useful in children because of its superior ability to image hydronephrosis, accurately diagnose duplication anomalies and ureteral ectopia and evaluate renal parenchymal thickness and scarring. Ultrasonography is superior to conventional intravenous urography in evaluating hydronephrosis, which can be difficult to evaluate because of poor visualization due to decreased renal function from high-grade obstruction. These disorders are easily seen on ultrasonograms. Intrarenal masses and the abnormal parenchyma of renal dysplasia or cystic disease are also superiorly seen on ultrasonograms, as are renal duplications with nonfunctioning segments.

Ultrasonographic accuracy is limited by the resolution of the instrument and the diligence of the operator. Because of its superiority in imaging most pediatric urologic disorders and the fact that its use eliminates radiopaque media complications, radiation exposure and the traumatic milieu associated with invasive procedures, high-resolution ultrasonography has become the diagnostic procedure of choice for many of the problems seen in pediatric urology.

J. David Moorhead, M.D.
Loma Linda, California

REFERENCES

Markle BM, Potter BM: Surgical diseases of the urinary tract, in Haller JO, Shkolnik A (Eds): Ultrasound in Pediatrics. New York, Churchill Livingstone 1981, pp 135-164.

Slovis TL, Perlmutter AD: Recent advances in pediatric urologic ultrasound. J Urol 1980, 123:613-620.

Treating Female Urinary Incontinence

The successful elimination of female urinary incontinence requires that the cause be accurately identified because corrective treatment is specific to the origin. Patients who have urgency incontinence as the primary symptom, who do not have associated urethral or bladder neck hypermobility and who have bladder instability noted on a filling cystometrogram are most appropriately treated pharmacologically.

Patients with stress urinary incontinence in whom bladder pressures are stable during the filling cystometrogram and who have significant urethrovesical junction mobility will usually benefit from bladder neck suspension. This procedure can be done either through an abdominal or a vaginal approach. Success of the operation depends on adequate elevation and fixation of the urethra and bladder neck to their normal retropubic position.

If the procedure is done vaginally, the bladder neck is best elevated by placing large, monofilament, nonabsorbable sutures securely on the vaginal wall at each side of the urethrovesical junction, and, after pulling them up through the retropubic space from above, they are secured to the lower abdominal wall fascia or periosteum of the pubis and frequently then to each other.

Many urologists prefer to assure the appropriate placement of these sutures and the successful closing of the continence-providing portion of the urethra by inspecting the urethra cystoscopically as the sutures are tightened.

Those few (about 5%) who continue to have incontinence may achieve cure with another suspension (if the first failed to achieve anatomic correction) or they may be considered for a fascial sling procedure, artificial urinary sphincter or periurethral Teflon paste injection.

Roger Hadley, M.D.
Loma Linda, California

REFERENCES

Hadley HR, Zimmern PE, Staskin DR, et al: Transvaginal needle bladder neck suspension. Urol Clin North Am May 1985, 12:291-303.

Raz S: Modified bladder neck suspension for female stress incontinence. Urology 1981, 17:82-85.

ADVISORY PANEL TO THE SECTION ON UROLOGY

Joseph B. Hart, M.D.
Advisory Panel Chair
CMA Scientific Board Representative
Newport Beach

Arthur L. Dick, M.D.
CMA Section Chair
Section Editor
Los Angeles

Eugene V. Cattolica, M.D.
CMA Section Secretary
Oakland

John A. Blum, M.D.
CMA Section Assistant Secretary
San Diego

Henry L. Hadley, M.D.
Loma Linda University

Robert Kessler, M.D.
Stanford University

Ralph W. DeVere White, M.D.
University of California, Davis

Donald C. Martin, M.D.
University of California, Irvine

Jean DeKernion, M.D.
University of California, Los Angeles

Joseph D. Schmidt, M.D.
University of California, San Diego

Emil A. Tanagho, M.D.
University of California, San Francisco

Stuart D. Boyd, M.D.
University of Southern California

Jack McAninch, M.D.
San Francisco

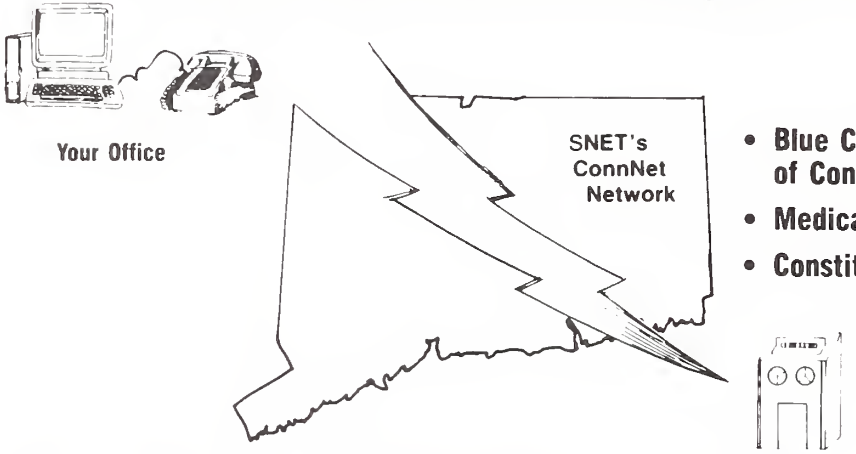
Gerald B. Farrow, M.D.
Chula Vista

Sherman H. Bruckner, M.D.
Beverly Hills

Charles Streit, M.D.
Fullerton

Connecticut Health Care Providers

The shortest distance between these two points is a line...



- **Blue Cross & Blue Shield of Connecticut**
- **Medicare (Part B-Travelers)**
- **Constitution Health Network**

A telephone line for the electronic transmission of claims!

A ProMed Electronic Claim Submission System or Professional Office System will improve your cash flow, reduce errors, save postage and paper costs and improve the efficiency of your office. Our Electronic Claim Submission System can be leased for $175.00 per month. Our full practice management system, The Professional Office System, starts at less that $10,000.00 including all hardware, software and training.

Want to join the hundreds of other medical providers who are already enjoying these benefits?

Call Bob Seekamp, Director of Marketing at
1-800-922-3385 today.

ProMed
SYSTEMS INCORPORATED

221 Whitney Avenue
New Haven, CT 06511

A subsidiary of:

Blue Cross
Blue Shield
of Connecticut

A Special Message from the Medicare Carrier

GERALD I. BLANK, M.D.

Since the part B carrier for Medicare has recently changed, this is an ideal opportunity to speak to the physicians of our state. A dialogue between the Medicare carrier and physicians is long overdue. It is only through understanding and cooperation that the people of Connecticut will get the care they are entitled to, and at the same time the physicians will be reasonably compensated. It is in order to initiate that dialogue that this is written.

Initially a philosophical baseline must be established. It became obvious some two decades ago that the cost of medical care was beginning to exceed the ability of the country and the people in it to pay. Large segments of the population were going without medical care or with minimal care. The Congress of the United States in an attempt to solve this problem instituted Medicare. Obviously, our country was not the only one to be faced by this problem and not the only one to be looking for a solution. As we well know, other countries took other approaches. Medical science had advanced sufficiently in our century that it became unconscionable to leave a segment of our population without care. In earlier times our medical knowledge was such that the physician rarely made a difference to continued life and well-being. This is no longer the case. All the governments of technologically advanced countries of the world had come to the same conclusion. Morality dictated provision of care to all members of society.

Valid arguments can be made as to whether our solution is the best solution under the circumstances. This, however, is the one we have to work with and it is up to us to make it work for everyone. The cry—"Don't be part of the problem, be part of the solution."—applies in this case. I call upon you to assist in making this a functioning system for us all.

First let me describe how a claim is handled when it comes into our office. The claim must be completely filled out. It is handled at this point by a person with limited medical knowledge, who merely transfers the information on the form to a computer. If the information on the form fits with the screening criteria previously established, the claim is paid without any further attention. Fortunately most claims fall in this category. If, however, information is missing or does not conform to the preset criteria, clarification is requested. This clarification may appear redundant to you. Or the information may not be applicable to the situation. However, this step in claim handling is necessary to reduce the massive volume that must be handled rapidly. You realize that rapid handling of these forms is in your interest.

If information is present but does not conform to that which is expected, the input operator refers it first to her supervisor. When the supervisor cannot solve the problem, it then goes to one of our nurses if it is a medical issue. From there it may be referred to the physician consultant if the nurse is in doubt. The initial physician consultant may at that point refer the question even further to a specialist if that should prove necessary. Don't forget: most countries have systems that invade medical practice much more than Medicare does.

In certain cases it may be obvious that a claim will not be able to be handled routinely. In those instances, levels of consideration can be jumped over, speeding up the process. The submitting physician can initiate this by his comment on the claim that it is unusual in some fashion.

If a claim has been processed and the conclusions appear inappropriate to you, you can request a review. The conclusion may be genuinely inappropriate and the next higher level of review will correct it, or the decision may have been made for reasons not obvious to the submitting physician and not related to the medical facts. In the latter instance we will try to make the reason for the decision clear to you. As with all insurance programs, not everything which appears medically indicated is covered. If you are asked a question to assist in the claims processing, a serious answer always helps. The diagnosis alone may not tell us why a specific procedure or treatment was ordered.

After the initial claims handling procedure, if you still disagree with the decisions made on the claim, you have further recourse. First, you can appeal the decision. That appeal will be considered by a different person from the one who made the initial decision. If then you still disagree with the outcome, and the amount at issue exceeds $100, you can request a "Fair Hearing." This is a presentation made to a Hearing Officer who will consider the merits of your case. Naturally you have to present the medical facts from your perspective. This is often done in writing, but you may appear in person. Medicare' perspective is presented in writing, by the person who performed the review. If you still disagree, and the amount at issue is more then $500 you may have a second hearing before an Administrative Law Judge.

The consideration of a claim is not an offhand procedure. Many possibilities are open to the physician and, for that matter, to the beneficiary, to change a decision made by the carrier. Please take advantage of these opportunities if you feel it necessary.

If you have questions or comments which I might address in a subsequent article, please send them to *Connecticut Medicine,* or to me directly.

GERALD I. BLANK, M.D., Associate Medical Director, Medical Department, Casualty and Group Division, The Travelers, Hartford, CT.

INQUIRE TODAY.

You will be surprised
as to what is available
to you on a local basis.

ENDORSED BY
THE CONNECTICUT STATE MEDICAL SOCIETY

— OFFERING —

- Disability Income Insurance
- Term Life Insurance
- Office Overhead Insurance

— FEATURING —

- Hospital, Surgical and Major Medical Insurance [A Viable Alternative]

AYR INSURANCE AGENCY

105 SANFORD STREET HAMDEN, CT 06514 288-4302

A History of the Joint Commission on Accreditation of Hospitals

JAMES S. ROBERTS, M.D., JACK G. COALE, M.A. AND ROBERT R. REDMAN, M.A.

The history of the Joint Commission on Accreditation of Hospitals is a story of the health professions' commitment to patient care of high quality in the 20th century. The story began on a summer day in England in 1910. While riding back to London from a visit to a tuberculosis sanitarium, Dr. Ernest Codman was explaining his end-result system of hospital organization to Dr. Edward Martin. According to Dr. Codman, his system would enable a hospital to track every patient it treated long enough to determine whether or not the treatment was effective. If the treatment was not effective, the hospital would then try to find out how to prevent similar failures in the future. Dr. Martin responded that he thought Dr. Codman's system was one of the important reasons why an American college of surgeons should be established:

> An American College would be a fine thing if it could be the instrument with which to introduce the End Result Idea into hospitals; in other words to standardize them on the basis of service to the individual patient, as demonstrated by available records.[1]

Beyond establishing the concept of a linkage between an American college of surgeons and hospital standardization, this conversation was also the first expression of the principle that was eventually to guide the standardization program: service to the patient.

Dr. Martin's interest in improving conditions in hospitals was shared by other physicians and by hospital administrators in the United States and Canada. Conditions in hospitals were embarrassing to the professions. Most hospitals were little more than boardinghouses for poor and sick persons. Patients were not examined when they were admitted, and because histories and diagnoses were seldom recorded, medical records were useless. Most hospitals also lacked the equipment and services necessary for conducting proper preoperative and postoperative evaluation of surgical patients. Furthermore, few efforts were made to determine the results of patient care and treatment. Leading physicians believed that the basis of the most serious problems was the lack of organized medical staffs. Certainly, no efforts were made to determine a physician's competence to practice in a hospital, and no one was held responsible for the quality of care provided to patients.[2]

While conditions in hospitals were viewed as grim, many involved in medicine and hospital administration were optimistic about the future. The source of their optimism was the convergence of significant advances in the science of medicine and in management concepts, as well as the recognition of the value of hygiene in health care. Technological progress in the practice of medicine, particularly in the performance of surgery in hospitals, offered considerably safer care for patients. Management principles developed during the industrial revolution were also being applied successfully in all types of businesses, including hospitals. Interest in formulating standards of care and in developing systems to produce better products more efficiently began to spread. Dr. Codman's end-result system was just one example of the application of management principles to hospital care.

These several factors were the background against which the Third Clinical Congress of Surgeons of North America met in November 1912. At this historic meeting, Dr. Franklin Martin made a proposal that was to lead to the founding of the American College of Surgeons. Immediately following that proposal, Dr. Allen Kanavel set forth the following resolution at the request of Dr. Edward Martin:

> Be It Resolved by the Clinical Congress of Surgeons of North America here assembled, that some system of standardization of hospital equipment and hospital work should be developed, to the end that those institutions having the highest ideals may have proper recognition before the profession, and that those of inferior equipment and standards should be stimulated to raise the quality of their work. In this way patients will receive the best type of treatment, and the public will have some means of recognizing those institutions devoted to the highest ideals of medicine.[3(pp475-476)]

It is a tribute to Dr. Martin's foresight that he managed to associate this first official expression of the need for hospital standardization so closely with the proposal that would result in the creation of the American College of Surgeons. There appeared to be a clear realization that the hospital standardization program must have the backing of a national organization if it were ever going to have

---

From the Division of Research and Planning (Dr. Roberts), and the Departments of Corporate Relations (Mr. Coale), and Publications (Mr. Redman), Joint Commission on Accreditation of Hospitals, Chicago.

Reprint requests to Joint Commission on Accreditation of Hospitals, 875 N Michigan Ave, Chicago, IL 60611 (Mr. Coale).

Reprinted with permission of authors and *JAMA*, Aug 21, 1987; Vol 258, No 7.

a chance to succeed. Largely because of his efforts, hospital standardization became one of the stated purposes of the College when it was founded in 1913.

During the first few years of its existence, the College focused its energies on solving problems of vital concern to its survival and success. Hospital standardization quickly and unexpectedly became one of these problems. During the first three years of its existence, the College found it necessary to reject 60% of the applicants for fellowship because the 50 case records required from each fellowship applicant provided the college with an insufficient basis to determine clinical competence.[4] Shortly thereafter, John Bowman, Ph.D, the director of the College, used his influence with the Carnegie Foundation, New York, to obtain a gift of $30,000 to launch a hospital standardization program.

From Oct. 19 to 20, 1917, 300 fellows from the Committees on Standards from every state in the union and every province in Canada, as well as 60 leading hospital superintendents, met in Chicago to discuss hospital standardization. During the conference, the participants described existing conditions in hospitals and discussed the kinds of improvements that would be necessary to ensure the proper care and treatment of patients. This conference, the papers and some of the discussions of which are published in the first issue of volume 3 of the 1917 *Bulletin of the American College of Surgeons,*[2] is of interest not only because it established the foundation for hospital standardization, but also because it created the concept that knowledgeable and experienced health care professionals should assess conditions in the hospital environment and work to achieve consensus on standards that would have the greatest positive effect on the quality of care provided to patients. That concept continues to underlie the accreditation process today.

On Dec. 20, 1917, two months after the Conference on Hospital Standardization, the American College of Surgeons formally established the Hospital Standardization Program, and in March 1918, the College published a "Standard on Efficiency" in the *Bulletin.* Expecting to approve at least 1,000 hospitals during the first year, the College staff began testing the program in April 1918.

The results of the field trials were announced by Bowman at a conference on hospital standardization in New York on Oct. 24, 1919. Bowman told the audience that 692 hospitals of 100 beds or more had been surveyed and that only 89 hospitals had met the standards.[3(p221)] While these results are not surprising when one considers conditions in hospitals at the time, the results were nevertheless shocking.

Although the College made the numbers public, it burned the list of hospitals at midnight in the furnace of the Waldorf Astoria Hotel, New York, to keep it from the press. Some of the most prestigious hospitals in the country had failed to meet the most basic standards. However, 109 hospitals corrected deficiencies after their initial surveys and were subsequently approved. Although the field trials were disappointing, they dramatically demonstrated the need for a national hospital accreditation program, and they solidified national support for the program.

Consequently, the College's Board of Regents adopted five official standards for the program at its December 1919 meeting (Table 1).[3(pp489-490)] These standards, which are collectively known as the *Minimum Standard,* define those factors then considered essential to the proper care and treatment of patients in any hospital. Dr. Franklin Martin, one of the individuals who developed the content of the *Minimum Standard,* said it was intended to

> safeguard the care of every patient within a hospital by insisting upon competence on the part of the doctors, and upon adequate clinical and pathological laboratory facilities to insure correct diagnosis; by a thorough study and diagnosis in writing for each case; by a monthly audit of the medical and surgical work conducted in the hospital during the preceding interval; and by prohibiting the practice of the division of fees under any guise whatsoever.[5]

That these standards are as essential to the provision of quality care in hospitals today as they were in 1919 is no small tribute to the men who contributed to their development. In 1924, Dr. Franklin Martin said that the *Minimum Standard* had "become to hospital betterment what the Sermon on the Mount is to great religion."[6]

Table 1

THE MINIMUM STANDARD*

1. That physicians and surgeons privileged to practice in the hospital be organized as a definite group or staff. Such organization has nothing to do with the question as to whether the hospital is "open" or "closed," nor need it affect the various existing types of staff organization. The word STAFF is here defined as the group of doctors who practice in the hospital inclusive of all groups such as the "regular staff," "the visiting staff," and the "associate staff."

2. That membership upon the staff be restricted to physicians and surgeons who are (a) full graduates of medicine in good standing and legally licensed to practice in their respective states or provinces, (b) competent in their respective fields, and (c) worthy in character and in matters of professional ethics; that in this latter connection the practice of the division of fees, under any guise whatever, be prohibited.

3. That the staff initiate and, with the approval of the governing board of the hospital, adopt rules, regulations, and policies governing the professional work of the hospital; that these rules, regulations, and policies specifically provide:

(a) That staff meetings be held at least once each month. (In large hospitals the departments may choose to meet separately.)

(b) That the staff review and analyze at regular intervals their clinical experience in the various departments of the hospital, such as medicine, surgery, obstetrics, and the other specialties; the clinical records of patients, free and pay, to be the basis for such review and analyses.

4. That accurate and complete records be written for all patients and filed in an accessible manner in the hospital—a complete case record being one which includes identification data; complaint; personal and family history; history of present illness; physical examination; special examinations, such as consultations, clinical laboratory, X-ray and other examinations; provisional or working diagnosis; medical or surgical treatment; gross and microscopical pathological findings; progress notes; final diagnosis; condition on discharge; follow-up and, in case of death, autopsy findings.

5. That diagnostic and therapeutic facilities under competent supervision be available for the study, diagnosis, and treatment of patients, these to include, at least (a) a clinical laboratory providing chemical, bacteriological, serological, and pathological services; (b) an X-ray department providing radiographic and fluoroscopic services.

*Reproduced with permission from the American College of Surgeons (*Bull Am Coll Surg* 1924;8:4.)

With the adoption of the *Minimum Standard*, the accreditation process that continues today was set in motion. The following steps are included in this process: the development of reasonable standards that every organization should be expected to meet and that the health professions agree will have a positive effect on improving the quality of patient care; the voluntary request for survey and approval by a health care organization; the survey of the organization by professionals who assess compliance with the standards and provide consultation to support achievement of greater levels of compliance; and the subsequent efforts of organizations to use the standards and survey results to improve patient care.

The *Minimum Standard* was considered to be a beginning. The College knew that hospitals would advance and change, and it expected the Hospital Standardization Program to evolve with them. Ensuring that the standards and the accreditation process remain responsive to conditions in health care organizations and focused on issues that will protect and promote quality of care has proved to be one of the greatest challenges to the health professions.

The Hospital Standardization Program had a strong beginning, and the value of the program became broadly apparent. The case records submitted to the College by surgeons in approved hospitals provided an acceptable basis for evaluation, and the quality of care in these hospitals improved noticeably. As news of the program's success spread, more and more hospitals sought approval. The number of approved hospitals rose from 89 in 1919 to 3,290 in 1950, over half of the hospitals in the United States.

By 1950, the size and scope of the program had increased significantly, and the College, which had already invested $2 million in the Hospital Standardization Program, was having difficulty in supporting the effort alone. In addition, the increasing sophistication of medical care, the growing number and complexity of modern hospitals, and the rapid emergence of nonsurgical specialties after World War II required that the standards be revised, expanded, and updated, and that the scope of the survey be extended. These considerations clearly suggested that the Hospital Standardization Program needed the support of the entire medical and hospital field. Consequently, the College solicited the support and participation of other national professional organizations in the creation of an independent organization that could devote all of its efforts to improving and promoting voluntary accreditation.

After considerable deliberation, the American College of Physicians, the American Hospital Association, the American Medical Association, and the Canadian Medical Association joined the American College of Surgeons on Dec. 15, 1951, to form the Joint Commission on Accreditation of Hospitals as an independent, nonprofit organization. The Canadian Medical Association withdrew in 1959, to participate in the development of its own program, the Canadian Council on Hospital Accreditation. The College officially conveyed its program to the Joint Commission on Dec. 6, 1952, and the Joint Commission began to offer accreditation to hospitals in January 1953.

In addition to carrying on the College's program, the Joint Commission preserved the traditions established by the College. The accreditation process remains voluntary, the standards continue to represent what health professionals agree is most conducive to the provision of quality care to patients, and the accreditation survey still provides an evaluation that achieves its most beneficial effects through a combination of evaluation, education, and consultation. Also, as in the past, the information obtained in the survey process is still held in confidence between the Joint Commission and the organization surveyed.

The Joint Commission today is directed by a 22-member Board of Commissioners. Seven commissioners are appointed by the American Medical Association; seven by the American Hospital Association; three by the American College of Physicians; three by the American College of Surgeons; one by the American Dental Association, which accepted an invitation to become a corporate member in 1979; and one is a private citizen appointed annually by the rest of the board.

Under the direction of the Board of Commissioners, the Joint Commission continued to expand the College's program, which was now called the Hospital Accreditation Program. It hired and trained a cadre of experienced surveyors and focused the survey on medical staff and patient care issues; and just as the College of Surgeons had done, it periodically revised the standards to reflect the evolution of hospital care.

In August 1966, the Joint Commission board made a major decision to undertake a complete revision of the standards to reflect an optimal achievable rather than a minimal essential level of care. This decision, which redefined the Joint Commission's role in health care, was made for two reasons. First, the majority of hospitals in the country had achieved and were maintaining the minimum standards, and because of this, the standards no longer challenged hospitals to reach for the levels of quality care the Board of Commissioners thought could now be achieved. The second reason was even more compelling. Dr. John Porterfield, who was then the director of the Joint Commission, described it as follows:

> In the mid 1960s the Joint Commission found itself no longer the advanced and lonely leader. The Federal government wrote its conditions for participation in Medicare. State after state with new and refurbished licensing authority wrote regulatory codes, where there had been few or none before. They did have some premise on which to build and it is more than coincidence that the federal conditions and, more particularly, the state codes bore a strong family resemblance to the Joint Commission's accreditation standards. From advanced leader, the Joint Commission seemed almost overnight to be struggling to stay even in the vanguard of progress. And it was challenged, most seriously, as being no longer necessary because now everybody was beginning to do what it had once done alone.[7]

When the government moved toward usurping the Joint Commission's role as the definer of the minimal acceptable level of hospital care, it became necessary and appropriate for the Joint Commission to become the definer of the optimal achievable level of care. In doing so, the Joint Commission was not only realizing the intentions of the founders of hospital standardization, but also assuming a role that was more compatible with the ideals of the health professions that supported voluntary accreditation.

The publication of the optimal achievable standards in the *1970 Accreditation Manual for Hospitals* was a landmark.[8] In little more than 50 years, the one-page set of standards that specified a minimal essential level of performance had developed into a 152-page manual of state-of-the-art standards. The Joint Commission did not intend the term *optimal achievable* to mean the ideal. It meant the best that could be achieved at the time, given the legal and other concerns that must be accommodated in national standards to make them as effective as possible.[9] The publication of these standards was a clear indication of the tremendous progress hospitals had made since the beginning of this century and of the impact of voluntary accreditation on the quality of hospital care.

In the early 1960s, concern for the quality of care provided in other types of health care organizations that were proliferating throughout the country led the Joint Commission and other national professional organizations to discuss the possibility of developing new accreditation programs. The expansion of the Joint Commission to include programs for other types of health and health-related organizations seemed only natural after the successful leadership it had demonstrated in improving hospitals. The Joint Commission had experience and expertise, and it had national scope and acceptance. A principal organization for voluntary accreditation would also give unity and strength to new accreditation efforts and would afford the greatest opportunities for the coordination of efforts and consistency among approaches to accreditation.

Working with an ever-expanding number of national professional organizations, the Joint Commission developed standards and accreditation programs for a broader variety of health care settings. An accreditation program for long-term care facilities was established in 1965, for organizations serving developmentally disabled persons in 1969, and for psychiatric facilities, substance abuse programs, and community mental health programs in 1970. An accreditation program for ambulatory health care programs was established in 1975 and for hospices in 1983.

During the expansion, the Joint Commission established what are now called Professional and Technical Advisory Committees. One of these committees advises each Joint Commission accreditation program on standards development and survey procedures. Each committee is composed of approximately 15 individuals who are usually appointed as representatives of national organizations having expertise relevant to the particular accreditation program. In addition, approximately 15 experts on education and publications and 15 on health care safety serve on committees that advise the Joint Commission in these areas. All Joint Commission accreditation sevices are supported by education, publications, and research activities.

Through its Board of Commissioners, the various committees that advise the Joint Commission on a regular and ad hoc basis, the thousands of facilities that participate in the accreditation process, and a standards development process that includes extensive review by the field, the Joint Commission maintains close working relationships and continuous communications with health professionals. Through these mechanisms, the Joint Commission monitors the health care environment and has access to the best advice available in health care. This is of incalculable value in the Joint Commission's efforts to maintain state-of-the-art standards and survey processes, as well as education programs and publications. These mechanisms also give the Joint Commission a large measure of assurance that current issues and trends will be fully discussed before important decisions are made.

In addition to its close working relationships with the health professions, the national professional organizations that represent them, and the wide array of accredited organizations, the Joint Commission has important relationships with government. These relationships began in 1965, when Congress passed Public Law 89-97, the Medicare Act. Written into this law was a provision that hospitals accredited by the Joint Commission were "deemed" to be in compliance with most of the *Medicare Conditions of Participation for Hospitals*[10] and, thus, deemed to meet eligibility requirements for participation in the Medicare program. Because a hospital that was certified for Medicare was also considered certified for Medicaid, hospitals accredited by the Joint Commission were similarly eligible for Medicaid participation. Consequently, hospitals that desired to participate in the Medicare and/or Medicaid programs could undergo either a certification inspection by a state agency or an accreditation survey by the Joint Commission.

Government oversight and responsibility were added to this system in 1972 through amendments to the Social Security Act, Public Law 92-603. These amendments required the Secretary of the Department of Health and Human Services to validate Joint Commission findings on a selective sample basis or on the basis of substantial complaint. The law also required the Secretary to include an evaluation of the Joint Commission accreditation process, as gleaned from validation surveys, in his annual report to Congress on Medicare.

Accredited psychiatric and tuberculosis hospitals were not accorded deemed status by the Social Security Act. Instead, the Act required that such hospitals be accredited by the Joint Commission to participate in Medicare and Medicaid. Because this requirement impinged on the voluntary nature of the accreditation process, the Joint Commission sought and finally succeeded in obtaining elimination of this mandate in the Deficit Reduction Act of 1984, Public Law 98-369.

The Joint Commission also has developed relationships with state governments. Today, 39 states and the District of Columbia have incorporated the Joint Commission's hospital accreditation requirements, in whole or in part, into their hospital licensure systems. In most of these states, however, licensure is not granted merely on the basis of accreditation, but rather on the basis of an acceptable review of Joint Commission findings by the state licensing agency. All of the affected states have retained the enforcement powers that accompany responsibility for licensing hospitals. Even though a hospital is considered licensable if it is accredited, the hospital must still comply with licensing laws and regulations.

Accredited hospitals have been considered to meet Medicare health and safety standards for over 20 years now, and the Joint Commission has considerable experience with state licensure programs. Through this time, there is no evidence that these arrangements have had any negative effects on Joint Commission standards and survey processes. On the other hand, there is considerable evidence that these cooperative relationships with government have had synergistic effects that benefit all concerned.

The combination of private sector and public sector responsibilities has served as a stimulus for the Joint Commission to improve its accreditation process. A two-year study of the Joint Commission, state agencies, and what was then the Department of Health, Education, and Welfare, was conducted by the General Accounting Office and reported to Congress on May 14, 1979, in publication HRD-79-37, *The Medicare Hospital Certification System Needs Reform.*[11] Although the report identified deficiencies in the procedures of all three organizations, it praised the Joint Commission for the consistency, effectiveness, and economy of its standards-setting, surveyor-training, accreditation-survey, and decision-making processes.

At the state level, cooperative arrangements with the Joint Commission have provided states with an alternative perspective on the strengths and weaknesses of the hospitals under their jurisdiction and have enabled them to concentrate their resources and enforcement efforts on problem facilities. These arrangements have reduced the number of surveys that hospitals have had to undergo and, consequently, there have been considerable savings of time, effort, and money for these hospitals.

No history of the Joint Commission's voluntary accreditation program effort would be complete without a discussion of quality assurance. The first national requirements calling for regular review and evaluation of the quality of care provided to patients in hospitals were part of the minimum standards of the American College of Surgeons. After the Joint Commission assumed responsibility for the College's program, efforts were undertaken to develop standards for the various services in modern hospitals. These standards paralleled the minimum standards with regard to their emphasis on review and evaluation of the quality of care provided. However, most in-hospital evaluations that were conducted were informal and subjective and were based on an individual practitioner's knowledge and experience in evaluating records and in observing the performance of others.

At the same time, those involved in quality assurance research were developing methods to make the review and evaluation process more structured and objective. While various approaches were proposed, all involved two common elements. These focused on the use of systematic review procedures and the development of objective and valid criteria for measuring the actual quality of care being provided. Both of these elements constituted the essence of a medical audit methodology that the Joint Commission began promoting in the early 1970s. As a result, retrospective outcome-oriented audits were conducted throughout the country. Medical audits even became requirements of the Professional Standards Review Organizations legislated in 1972, in Public Law 92-603.

While encouraging the medical audit as a method of reviewing quality of care, the Joint Commission also directed attention to enhancing and clarifying other quality assurance standards. Requirements concerning medical staff-monitoring functions were consolidated and clearly defined as surgical case, pharmacy and therapeutics, blood and antibiotic usage, and medical records review. Standards were also adopted that called for review and evaluation of both the quality and appropriateness of care provided by medical and support service departments. Safety management, infection control, and utilization review standards were also strengthened. Finally, the Joint Commission adopted standards that asked hospitals to consider relevant results of quality assurance activities in reviewing the credentials and delineating the clinical privileges of medical staff members. This was the first explicit reference in Joint Commission standards to the important relationship between quality assurance activities and the delineation of clinical privileges.

Despite this quality assurance focus, most relevant hospital activities consisted of formal audit studies. In too many cases, these studies became paper exercises conducted to meet Joint Commission or Professional Standards Review Organization requirements. Because of this, the quality assurance effort was compromised and failed to effect the desired intent. Preoccupation with the audit requirement rather than quality of care had left hospitals at the periphery of meaningful quality assurance activities.

To address this problem, the Joint Commission developed a new quality assurance standard in 1979, which eliminated the numerical audit requirements and directed hospitals to develop a hospital-wide program that integrates all quality assessment activities. The purpose of the standard was to shift the attention of hospitals toward a systematic quality assessment process, the central element of which was the monitoring and evaluation of all important aspects of patient care to identify and correct patient care problems.

Since adoption of the new quality assurance standard for hospitals in 1979, the Joint Commission has established similar standards for all of the other types of health care organizations that it accredits. Through this standard, the Joint Commission intends to foster the integration of quality assurance mechanisms into the core management systems of accredited facilities. Clearly, quality assurance activities are increasingly linked to the processes of planning, budgeting, and tracking the utilization and cost of limited resources in many health care organizations today.

The evolution of voluntary accreditation has spanned most of the 20th century and is an integral feature of the era of modern medicine. Beginning with the commitment of the American College of Surgeons, the process has steadily gained the support of the hospital and medical fields. Today, the Joint Commission accredits approximately 5,000 of the 6,500 hospitals in the United States and 2,800 other health care organizations. Approximately 1% to 2% of those who seek accreditation do not achieve this status—a reflection of the strong professional motivation of those seeking accreditation to meet the established standards.

Since the Joint Commission began, the voluntary accreditation movement has spread to Canada and Australia, and in 1981, the Catalonia province of Spain implemented the first hospital accreditation program in Europe. Interest in voluntary accreditation and quality assurance systems in health care is now spreading rapidly to other countries.

Since 1917, the voluntary accreditation movement has been a consistent and persistent voice for quality in health care. The future holds its own challenges, but as in the past, meeting those challenges provides substance to the merits of voluntarism—of the willingness of the health professions to regulate themselves on the basis of their ideals, integrity, and commitment to patient care.

The Table is reproduced from reference 3, with permission from the American College of Surgeons.

REFERENCES

1. Codman EA: An autobiographic preface, in *The Shoulder: Rupture of the Subraspinatus Tendon and Other Lesions in or About the Supracromial Bursa.* Boston, Thomas Todd Co Printerss, 1934, pp v-vi.
2. Hornsby JA: Hospitals as they are: The hospital problem of today—what is it? *Bull Am Coll Surg* 1917;1:4-11.
3. Davis L: *Fellowship of Surgeons: A History of the American College of Surgeons.* Chicago, American College of Surgeons, 1973.
4. Schlicke CP: American surgery's noblest experiment. *Arch Surg* 1973;108:379-385.
5. Martin FH: *Fifty Years of Medicine and Surgery: An Autobiographical Sketch.* Chicago, Lakeside Press, 1934, p 338.
6. Stephenson GW: The College's role in hospital standardization. *Bull Am Coll Surg* 1981;66:17-29.
7. Porterfield JP: From the director's office. *Bull JCAH* 1972;4:1-2.
8. Joint Commission on Accreditation of Hospitals: *1970 Accreditation Manual for Hospitals.* Chicago, Joint Commission on Accreditation of Hospitals, 1971.
9. Porterfield JP: Mechanisms for hospital standards. *Bull JCAH* 1968;48:1-4.
10. US Dept of Health, Education, and Welfare: *Conditions of Participation for Hospitals.* Social Security Administration, 1966.
11. US General Accounting Office: *The Medicare Hospital Certification System Needs Reform: Report to Congress.* US General Accounting Office, 1979.

Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

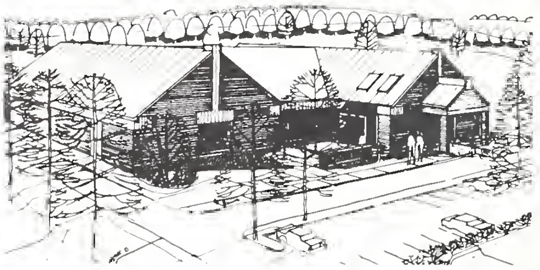
In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:

- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:

- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Medical) for Ophthalmology.
- CO_2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

Telling Stories as a Way of Doing Ethics

DAVID H. SMITH, Ph.D.

Beneficence • Medicine has long been a profession characterized by a special ethical commitment. The roles of healer and priest overlapped in the early mists of history and are not always easily separated even in our scientific and technological society. The very definition of health contains an important value assumption. "Healthy" can be easily equated with "good." But what is a good life? One that is long, one that is rich in a variety of experiences, one that brings pleasure? When a physician says to a patient, "Slow down. Don't work so hard. Take time to smell the roses and you'll live longer," the admonition makes a statement about what is valuable in human life. Ironically, the statement expresses a value which physicians often find difficult to implement in their own behavior.

The dominant value in recent centuries in western medicine has been that of beneficence. "Beneficence" means "doing what is good for another, acting in the other's best interest." Beneficence in its best sense represents a concern and commitment to another human being. The caring physician, much prized by patients in our society, is the physician acting beneficently. There is an element of self-sacrifice in the notion of beneficence: the physician will do what is best for the patient even in the face of the patient's failure to cooperate or comply, even if the patient is not clean and doesn't smell good, even if the patient requires care in the middle of the night or on a weekend, and even if the patient is ungrateful. A professional ethic based on beneficence contains much we, as a society, have come to admire. Physicians have justifiably taken pride in the commitment to others that the ethic of beneficence dictates.

Yet in recent decades, beneficence as the sole base for medical ethics has come under increasing criticism. Since World War II, concern for individualism has increased greatly in American society. People have become conscious of rights they never knew they had before. Participative decision making has become prized as a model for behavior in families, groups, and organizations. Submission to, and some would say respect for, authority has declined. In our consumer society the rapid differentiation of products and services to meet differing individual tastes has dramatized the rise of individualism. In the media we have gone from a nation with a relatively small number of large circulation magazines such as *Saturday Evening Post* and *Colliers* to a nation of many magazines targeted to specific audiences like runners, audiophiles, and rock hounds. Even health magazines have proliferated. This same pattern has repeated itself in radio and, through cable, is rapidly developing in telelvision. The consumerism movement also reflects rising individualism.

Concern for individualism has driven much of the effort in bioethics in the last 15 years. Beneficence has been portrayed as "paternalism." The physician deciding in the patient's best interest thus becomes, not a self-sacrificial, caring individual, but an autocrat who would substitute the doctor's judgment for the patient's wishes.

The principle of autonomy has been juxtaposed to this paternalism. The idea of autonomy is grounded on the writings of such philosophers as Immanuel Kant as well as on the concept of individual freedom built into American society. One should respect the autonomy of another individual because personhood is an end in itself, not a means to some other end. How can freedom be meaningful, if another, even a physician, can control what happens to one's own body? Here the legal position regarding consent to treatment has been an ally of those who would stress autonomy. The addition of information to the notion of consent has buttressed the individualistic position toward medical ethics.

This change in values has not been welcomed by all physicians. Taking time to give information and to get consent forms signed has at times made the practice of medicine seem more complex, more bureaucratic, and more legalistic. The resentment by physicians is more strongly grounded, however. Argument for change has too often been phrased as an attack on the medical profession itself. Physicians who have thought themselves to be acting self-sacrificially in the best interests of patients have been portrayed as undermining human freedom. Redefining the traditional value of beneficence as paternalism that undermines freedom may seem to distort the very value through

---

DAVID H. SMITH, Ph.D, Professor and Chief of the Human Values Division, Department of Comprehensive Medicine, University of South Florida College of Medicine, Tampa, Florida. Dr. Smith is also a member of the President's Special Committee on Ethics.

Reprinted with permission of *The Journal of the Florida Medical Association, Inc.*, August 1987.

which physicians have regarded themselves as a "good" profession. Medicine has seen itself as different from business and law precisely because its ethical base was stronger. With that base under attack, it is not surprising that a number of physicians have resented the attackers.

While some of the criticism of medicine has come from the consumer movement, another primary source has been bioethics. Bioethicists most often come from the fields of philosophy and religion. They have established themselves as commentators upon and critics of the practice of medicine. While a number of physicians have joined the ranks of bioethics, it has been primarily a self-styled movement developed outside of medicine and purporting to speak for patients in particular and society in general. Technological innovation, resource scarcity, and virtually any other reason has been used by bioethicists to justify a role for themselves in decisions about American medicine. And they have been successful. A major presidential commission produced volumes of work on bioethical issues. Bioethicists are now called upon by the media to comment on important bioethical issues. Bioethicists have found their way onto the faculty of the majority of medical schools in the country and courses in bioethics are often found in the catalogues of undergraduate educational institutions.

Again, the presence of these "outsiders" commenting on the way doctors do their work has not been entirely welcome. Physicians had not organized themselves to criticize philosophers. What were philosophers doing criticizing doctors?

A number of themes have characterized physician resistance to the bioethics movement. Four predominate:

1. "Medicine has always been a strongly ethical profession. There's no need for anyone outside of medicine to be involved. Doctors are strongly ethical. We can take care of our own profession."

2. "You can't learn ethics in medical school. You learn to be ethical at your mother's knee or at least at the foot of your first attending. People are either ethical or not and you can't change that by reading a lot of philosophy."

3. "You ethicists can never agree. There's always some argument to be made from every point of view. There's no way to choose. What you believe doesn't matter as long as you have your own beliefs and know what they are."

4. "I've read a lot of what you ethicists have written. It all sounds good, but when I'm faced with a decision as to whether to shut off a life support system or to continued to treat a seriously ill newborn, all that abstract theory doesn't mean a thing. Bioethics doesn't do anything for me in practice. It doesn't help with what I have to decide."

Each of the objections has some merit. As indicated previously, medicine has always had a strong ethical commitment and character is, in part, formed in early training both in the family and in the profession. But the latter two objections have considerably more force. If the consideration of ethics in medicine doesn't allow us to differentiate among possible actions and, even more importantly, if it makes a difference only in theory and not in experience then it would seem to warrant little attention. I shall consider the basis for these objections and then attempt to explain a way of using ethics that can make a difference in experience.

Principles • There are three important questions that the study of ethics can ask:

1. The Question of Principles: What is the "right" (or wrong) thing to do?

2. The Question of Values: What goals are worth pursuing?

3. The Question of Virtues: What does it mean to be a "good" person (doctor)?

Each of these questions directs our attention somewhat differently. Philosophers studying ethics have devoted themselves primarily to the question of principles. What is right and wrong?

The study of principled ethics attempts to develop a code of principles that can guide actions so as to make them ethical. Such a code, if fully developed, would be:

1. General. It would apply to a wide range if not all experiences.

2. Impersonal. It would apply to all persons and not be individually variable.

3. Abstract. It would be phrased in abstract rather than concrete terms in order to generalize over a wide range of circumstances.

Principles having these characteristics would then be applied to specific cases through the use of deducion. Argument would be tested through the rules of logic and would require considerable attention to definition of terms and precise use of language.

Because principles can conflict, it is necessary to develop a method for choosing among principles. A hierarchy of principles will be needed to indicate where some take precedence over others.

The method for clarifying and choosing among principles is to address hard cases, cases in which the principles are juxtaposed most dramatically. These cases are of necessity unusual rather than usual and are often quandaries, even dilemmas. One of the basic means of developing a set of ethical principles has been careful consideration of the most extreme, unusual, and difficult ethical cases. In considering the right of a patient to refuse treatment, for example, consideration is often given to the case of Donald C., a victim of extensive burns who wanted to refuse treatment and be allowed to die, but was unable to stop the treatment given to him. The conflict between subjects' right to withdraw from biomedical experiments and the prohibition on physicians against aiding suicide is examined by debating the wisdom of providing a switch so that Barney Clarke could turn off his artificial heart. In considering the wisdom of surrogate parenting, we are asked to consider the possibility that poor, ignorant women from underdeveloped countries may be effectively enslaved as brood mares. Such difficult cases may be interesting to debate but they do not characterize the ordinary ongoing life of physicians and patients. Developing an ethic primarily through consideration of such extreme cases may seem destined at the outset to miss the problems in ordinary medical practice.

There are other problems with the principled approach to ethics. While principles are general and abstract, experience is concrete and specific. It is not always easy to see how an abstract code can be applied. Often more than one principle seems applicable and it is hard to know how to choose between those. This feeds the criticism that all views are equally good.

When expressed in principles, ideals tend to be polarized. We seem forced to choose between two principles when we want to embrace them both. We may be asked to choose between patient autonomy and physician beneficence when we believe that both are important. We are asked to choose between life and choice and between education about the value of chastity and about the protection of condoms. The question, "Who should decide about treatment, the doctor or the patient?" is the wrong question. The better question is "How can patients and doctors decide together?" But the dilemma nature of the consideration of principled ethics juxtaposes principles in order to decide between them. This practice forces us into choices when we might prefer to rephrase the questions to avoid such choices.

Since principles tell us what is right and wrong, they do not easily lend themselves to compromise. How can be compromise what is right? Yet, in working together, human beings must often devise compromises with which all can live.

Because the cases through which the system of principles is developed are extreme cases, it is hard to draw on those cases as examples when one is faced with ordinary experience.

Ethical principles are both developed and applied through the application of systematic logic. The argument is rational; no emotion is to be admitted. Yet we know in our ordinary observation of people engaged in conversations about ethical issues that ethics is indeed a matter for emotion. When the very meaning of human life is being considered, when the appropriate role one should play in society is under examination, and when questions of how we ought to be to each other are being discussed, more than our cognitive systems are engaged. Our whole beings are involved. Many of us have been striving to find a way of thinking about medicine which admits emotion as an important element. Is it reasonable that a theory of ethics for medicine should exclude emotion at a time when we are increasingly attending to the role of patient emotions in illness and physician emotions as they influence the way patients are treated?

Similarly, the abstract nature of principles means that they apply equally to every one yet much recent concern has focused on making medicine a person-centered activity. In cliche form this becomes "Treat the patient, not the disease." We want a theory of medicine that starts with the individual. Those of us who sometimes describe modern medicine as scientific and overly technical should find it difficult to embrace an ethic for medicine that excludes individual considerations from the ethical system.

Principled ethics, because they are concerned with what is right and wrong, focus on rights and duties. They tell us what we are obligated to do for others and what we are entitled to expect from them. Yet some of the elements we want in an ethic for medicine seem poorly described as either rights or duties. Does one have a right to be loved? Can caring come from a duty? Doesn't describing compassion or fairness as obligations rob them of their very essence? If they come not from free choice but from duty can they have the force we desire?

Finally, if our effort is to find a set of principles that can apply to all in our society, we may find the task impossible in a society characterized by pluralism. We have come to prize and even celebrate the opportunity to exercise difference in belief and value. How, then, can we hope to find a set of principles which can apply to everyone in a society? Yet a system of principles which does not apply to everyone again invites the criticism that all views are equally valid, and the system of ethics turns out to be no guide at all.

The primary approach of bioethicists whose training is grounded in philosophy has been the approach they learned to apply to other ethical issues. They have attempted to develop a principled ethics for biomedicine. Yet that effort, while useful in part, has made many doctors reject the whole consideration of ethics in medicine. Bioethics has given insufficient guidance because it often seems impossible to choose between competing principles and finding a way to apply those principles in the confusion of everyday experience. Physicians who have wanted to consider the ethical aspects of medicine and who have looked to bioethics for help have, because of the over emphasis on the question of principle, often not found as much that is useful as they had hoped. They might find more assistance by considering the second and third questions, "What goals are worthy?" and "What does it mean to be a good doctor?" Note that these questions do not answer the question of what is right they simply turn our attention to other issues. No one would argue that the question of principle is unimportant, but if addressing it does not seem to help with experience, we want to give more attention to the other two questions.

Goals • The question of values asks about goals. Toward what end should we direct our activity? What purposes, objectives and ends should be the focus of what we want to obtain at various levels of health care from the system itself to individual practice? The primary goals will vary but would include good care, person-centered care, and efficient care whether related to time and energy or involving cost control.

While principles are either right or wrong, goals allow for degrees of accomplishment. In striving to be efficient, we may have attained some success but many want to strive for an even greater degree of efficiency. Further, we are not forced to choose between different goals, but may instead balance our efforts. We may direct some energy toward efficiency and some toward being supportive of other persons. In reviewing our performance we may decide that in one case we emphasized efficiency too much and personal sensitivity too little or vice versa. The guide for future acts is the attempt to attain the appropriate balance in goal pursuit. Asking the question of values allows us to achieve partial success in balancing conflicting goals to achieve the most desirable set of acts.

The question of values inherently facilitates compromise. It does not trap us into thinking we must choose between goals but allows us to compromise in order to strike the balance between them. Under different contextual pressures, we may decide to pursue one goal for a time more intensely than another. If, for example, there is a temporary budget shortfall, cost efficiency may become a goal with a higher priority than at a time when the budget is more ample.

The balancing of goals also seems a good fit with the uncertainty and ambiguity that characterize medicine. Any decision method used by physicians must allow for the presence of uncertainty in diagnostics and therapeutics. It is equally true in the areas of values and ethics. Here the standard of doing one's best applies. One need not worry that one has done the morally wrong thing because one is not asking the principled question. Rather one does the best one can to achieve what seem to be the most appropriate goals given the level of certainty present. Morality from the point of view of values and goals consists not in being right, but in an effort to engage the ethical issues. The only immoral act would be the failure to struggle with the ethical questions. Past experience becomes a basis for reexamination and the attempt to achieve a better balance in the future, not the search for moral error. Ethical life does not consist of finding a set of right answers which will settle the issues once and for all. It features the struggle to balance competing values as best one can in the short run and the constant reexamination of the value question.

Virtues • The first ethical question we can ask is the principled question, "What is right and what is wrong?" The second question we can ask is the value question, "What goals are worth pursuing?" The third question is the question of virtue. What does it mean to be a "good person," "good doctor?" This question is much like the question of value. Rather than directing attention to the health care system, the hospital or an individual practice, the question is addressed to the individual's character. Hard work is a virtue. Compassion is a virtue. Self-preservation is a virtue. Scientific and technical competence is a virtue. The question of virtue ethics asks how the physician should manifest the virtues associated with the profession in character and behavior.

Here again the answer lies in degrees of accomplishment and balance. One does not either have or not have compassion, but one is able to manifest it in differing degrees under different conditions. In reviewing one's own ethical life, one might decide that more attention to compassion is warranted in the future. The virtue of self-preservation is often undervalued by physicians. The high rates of personal failure, substance abuse, divorce, and suicide indicate that a number of physicians who may well exhibit the virtues of commitment, hard work, and dedication to patients, fail sufficiently to stress the virtue of self-preservation. They may have spent too little time pursuing their own self-development or attending to the needs of their families. A good person, a good physician, is also a balanced human being who attends to his own needs as well as to those of his patients. While self-sacrifice may be a virtue, if too much of the self is sacrificed too often, too little of the self will remain to share with others in the future.

It is not necessary to list all the possible virtues here. Honesty, truthfulness, fidelity, courage, respect for patients, keeping secrets (confidentiality), and those listed previously are a good beginning. Both the American Board of Internal Medicine and the American Board of Pediatrics now include certain virtues as necessary standards in the characters of residents completing accredited programs.

Stories • The argument above, then, suggests that pursuing the questions of values and virtues may be a more useful basis for ethics in medicine then limiting study to the question of principle. The problem remains, however, "How does one 'do' medical ethics?" At least the principled approach offers us the logical test for our arguments. How would one "do" values and virtues?

Here the humanities disciplines offer an alternative. That alternative stems not from philosophy as does logic but from history and literature. Scholars in the humanities refer to it as narrative theory. Narrative theory is enjoying particular popularity in all those disciplines which study discourse. The fundamental assumption of narrative theory is that the telling of stories to one another is among the most basic of human activities. One author even names man *homo-narrans*, man the story teller. It is through the telling of stories about ourselves and the events around us that we define reality, explain who we are to one another and set the stage for future action. Story telling makes sense out of our lives and out of the world. As we listen to the stories others tell us we learn what is important to them, what they believe is memorable, who in their stories is what kind of person, and what kinds of values justify decisions and actions.

Stories do not relate the facts of the matter but, rather, the perceptions of the story teller. Stories, therefore, are importantly interpretative. They are symbolic constructs. They select from all events those which are to be figure and those which are to be ground. The people who are portrayed as leading characters may differ when different story tellers tell about the same set of events. The actions which seem justified and unjustified may differ. The consequences of acts may be portrayed differently.

Because stories are interpretative, they tell us about the story teller as much or more as they tell about the events in the story. Hence, we can say that stories reveal what are taken to be values and virtues by those who tell stories. These become the underlying premises on which interpretations are based and on which actions are justified. As listeners to stories, we often must interpret in order to discover the values and virtues that are the underlying assumptions by story tellers. There are seldom expressed explicitly.

As we listen to the stories which others tell us, we will discover that they have structure. Time passes and characters appear. These characters have roles. Some are good guys; some are bad guys. There are heroes; there are villians. There are characters whose role is apparently comic relief. A plot unfolds in the stories we hear. There is action. There are major events, and there are minor events. There are climactic events. There may be an anticlimax. A mood is created. The mood may be tragic, heroic or comic. Sanctions are applied to the story. Some events or characters are depicted in a positive fashion while others are depicted in a negative fashion. The positiveness and negativeness tell us what the story teller values. Stories have a point of view, a perspective, a narrative stance. As we hear the story, we become aware of the narrative stance or perspective of the story teller.

Stories also imply the future. When one hears the past events as portrayed by the story teller, one knows that only a certain number of future events are possible. The person whose story depicts continuing success implies that the future is likely to bring still more success. The person at the end of his rope, experiencing constant failure, will find it hard to envision a dramatic turn of events leading to success. A patient depicted as incurably ill may seem one for whom limited treatment may be justified. If the illness is portrayed as episodic, extensive treatment designed to cure may be justified. Because stories imply the future, story telling leads us to decisions. As we work together, we tell one another our stories of the events we are encountering. When the stories we share come to imply similar next episodes, those next episodes become our decisions.

When we tell stories to one another, we discover the differences in our stories and have the opportunity to clarify them. Often we will modify our stories on the basis of what we have heard from others. Our stories will become more alike and, hence, make an agreed-upon decision more likely. Stories work not by argument but by suggestion and by identification. We identify with the character in the story. We feel with certain characters. We accept the suggestion as to what things are like and on the basis of that definition of reality confront the possibilities which such a depiction presents. We will not find the kind of logical arguments in stories we find in philosophical disputation or debate.

Stories capture the experience of the world. We carry in our heads what might be called archetypical stories. Stories we hear and experience are matched against those patterns. What is true for the archetype will be assumed to be true for the story which fits it.

Analogical reasoning • The preceding descriptions of the stories we tell each other may seem accurate, but they may not seem, on first examination, to inform us how to do medical ethics. Narrative does bring with it a technology which differs from the deductive logic of principled ethics. The logic of narrative is not deduction; it is analogy. Analogy is simply the making of comparisons. A patient may say, "I don't want to hook my mother up to the respirator because when we did that to my uncle we had trouble deciding when to turn it off." Here the story of the uncle and the story of the mother are matched by the story teller and found to be similar. The listener will ask the question of whether or not important similarity does indeed exist. Were the medical circumstances surrounding the uncle similar to those surrounding the case of the mother? If so, the analogy may be apt and provide a good basis for decision. But if the situations are not similar in their essential respects or if there are other analogies available which better fit the case, then we may want to reject the story of the uncle as the basis for determining the next episode of the mother's story.

Another way of looking at this process of comparison is as if we have templates which match certain life circumstances. The template metaphor has been used to describe the diagnostic process in medicine. A similar kind of analogical reasoning exists as we examine narratives. Since narrative works through analogy or comparison we can judge the quality of the story by examining the quality of the analogy.

Stories are shared. We talk to each other about our experiences. As people share stories with one another and the stories are retold, some elements in the stories triumph and persist while others drop out. Still others are integrated with other elements into the overall story. The stories which persist in retelling are good stories. They are good stories if they fit the facts. A physician can improve stories by pointing out where the facts of the stories do not fit the medical facts. Imagine that adult children tell a story of their mother who has a case of incurable Alzheimer's disease, but the medical facts, as determined by the physician, point only to a temporary nutritional difficulty. The children's view of the next episode in the life of the mother will change dramtically once the story is told with the appropriate medical facts.

Good stories are more complete than poor ones. They account for more detail. Good stories are internally consistent. They are also consistent with the events exterior to the story itself, but involving the same context or characters. Good stories have a kind of organic consistency we can call coherence. They hang together. There is a unity. They seem to be all of a piece. Good stories focus on the shared values among the various story tellers. The story becomes acceptable because the values in the story are shared.

Good stories fit our experiences. Occasionally, when someone tells us a story of something that has happened in his life, we shake our heads and say, "That can't be. The world as I know it doesn't work that way." Good stories, on the other hand, make sense. They seem reasonable. They seem to fit the world as we understand it and the way it works. We use narrative, then, to understand the nature of the story we tell and of the stories told by others.

As we listen to stories, we learn how the story tellers see the people who are involved. We find which characters are fully developed and what traits are portrayed as positive. We learn what futures are implied by the plot, what events are seen as climactic, and what events are considered trivial and unimportant. We learn how the narrator sees himself or herself by the perspective from which the story is told.

Having listened for the key elements of the story, we are then in a position to interpret the story. We ask what are the fundamental values that form the spine of the story. What are assumed to be the facts? Once the physician has identified the values and the facts as expressed in the story, the story telling can then be used to help patients and families. Where the stories do not fit the facts, physicians can retell the stories emphasizing the medical facts as the physician knows them. Where the stories are not good analogies, where the comparisons are not apt, the physician may tell another story which makes a better comparison and is a better analogy.

Physicians can help patients and families by encouraging them to tell their stories and by encouraging them to elaborate the characters and the plot. Stories are usually told in an abbreviated form as in the case of the mother and the uncle above. "Tell me more about your uncle's problems," the physician may say. By listening for the elaboration of the characters and the plots, the physician will be able to identify whether or not the comparison is a good one, and the physician will learn much more about the story teller. Where elements in the story have been treated in a cursory fashion, the physician can encourage the elaboration of those elements. The physician can then feed back key story elements to the story teller to see if those elements fit the way the story teller really wants to see the world.

Finally, the physician can use the narrative technique to help in the making of decisions. The physician may encourage those in the health care team, family members, and patients to tell stories about the critical events to each other. By interpreting together what the stories mean for each, it may be possible for all those involved to come to a collective interpretation which is acceptable. The alert physician may also be able to offer stories which imply future actions that all can accept.

The following list can serve as a summary of how physicians can use narrative to help address ethical problems:

1. Understand your own story. How do you see the characters and events? What future does your story imply? What values does it reveal? What are virtues in the characters?

2. Encourage others involved to tell you their stories. Understand patients, family members, and other care givers perceptions and values by listening to their stories. Interpret their stories as you did your own.

3. Encourage the elaboration of key events and characters to make stories more complete and revealing.

4. Clarify facts in the stories where they are inaccurate or unclear.

5. Examine analogies for the appropriateness of the comparisons. Offer alternative analogies where appropriate.

6. Encourage the elaboration of future episodes implied by the stories told. Note where different and similar futures are implied by different stories.

7. Encourage those involved to share stories and to pool their stories toward accuracy, completeness, coherence, unity, and a good fit with experience.

8. Offer alternative future episodes where appropriate.

9. Develop a story which integrates the values of those involved, implies an acceptable future, and guides actions.

To illustrate the usefulness of narrative in medical ethics, let me tell two stories: The first is about a medical student who was assigned to follow a patient hospitalized with pneumonia. The patient was also suffering from AIDS. Only the patient's wife knew that he was bisexual and that he had AIDS. The patient came from a large, close-knit Latin family. His father was greatly concerned for the well being of his son. On several occasions, the father talked directly to the medical student asking, "How is my son?" The medical student felt uncomfortable. He knew that simply saying the son seemed to be recovering from the pneumonia was not really a truthful answer to the question. At the same time, he felt constrained from revealing to the father that the son had AIDS and was bisexual.

When the medical student presented this difficulty to his preceptors, they could easily have treated it as a dilemma of conflicting principles, the principle of confidentiality on the one hand and the principle of veracity on the other. Should one keep a secret or tell the truth? The ethicist and physician who worked with the student, however, chose not to opt for a philosophical debate among principles. Instead, they advised the student to see himself as a character in this story, a character affected by his own perceptions of values and faced with a value quandary. They encouraged the student to share with the patient the role he was playing in the story.

The student did that. He told the patient that he was having difficulty knowing what to say to the patient's father and wondered if the patient could talk with him a little bit about what he really wanted. As a result of that conversation, the patient began to see the implication of his current desire for secrecy for the longer term future of himself and his family. He began to realize that at some point his family would need to know, accept and understand his illness and lifestyle and that bringing his life to a good end would require at some point the confronting of these issues. He reconstructed the story and saw himself sharing this information with his family as an act of love and reaffirmation. The patient was then able to act on that future as he had come to conceive it.

Rather than asking which principle was paramount, the medical student asked about values and virtues. By using the narrative approach he enabled both himself and his patient to discover alternative futures which made resolving an apparent dilemma unnecessary.

My second story is that of a couple who had been lovingly married for many years. When the husband developed terminal cancer he confided in his physician that his strong love for his wife made him want to limit treatments which would leave him weak, emaciated, and supported by tubes. He wanted his wife to remember him as he had always been: energetic, strong and vigorous, able to provide her with humor, support, and understanding.

The wife spoke separately to the physician, stressing her long and deep love for her husband. As she envisioned the future, she told her story of how it would be. She wanted the physician to do everything possible to prolong the life of her husband so that they might share as much time together as possible. She was more than willing to care for him in every personal way in order to sustain his life and to share as many moments with him as she could.

The future she saw in their story of love was one of the maximum possible time together. The value underlying his vision of the next episode in their story was one of strength and consistency. Each story was based on love. Each episode was plausible. Each sought to implement values the physician could admire. What role could the physician play?

If one asks the principled question, "Who should decide, the patient or the patient's family?" the principle of autonomy makes the answer quite clear. They physician should attend to the wishes of the patient and not to those of the family. Yet family members are importantly involved in the stories of their loved one's illnesses. They hope. They fear. They hurt. They cry. The wife's concerns were good ones; the goals she sought to serve were positive goals. Simply ignoring them didn't fit the character the physician saw himself playing nor was it consistent with the patient's regard for his wife.

The physician told his story to the two of them, the story of a man trying to assist both of them to realize the best future. He then got them to tell their stories to each other. Each recognized the story of the other as an act of love. Taking the medical facts as related in the story of the doctor into account, they were able to integrate their stories of the future. The husband agreed not to leave his wife too soon and not to seem to abandon her. The wife, at the same time, recognized his need to remain, in her eyes, the man he had always been. He accepted her need to have him there, and she accepted his need not be remembered as weak and dependent. They, along with the physician, were able to agree on just how much and what kind of treatment would be used. A story was created which could integrate the values and facts held by all three.

Cases • If increased concern for bioethics has been accepted only reluctantly by many physicians, it may be because the question of principled ethics appears to constitute an attack on long-held physician values, on the one hand, and to offer little direct assistance in day-to-day experience on the other. Realizing that the question of principle is not the only ethical question may enable the profession to broaden its view of the usefulness of ethical consideration. Directing attention to questions of values and virtues may be fruitful. Such attention may be particularly helpful if the role of story telling in human life and decision-making can be recognized, and if physicians can become proficient in using the stories to assist them in meeting the ethical demands of situations.

The case has long been the method of sharing ideas about medicine. The case is, after all, a story. Often, cases shared by physicians portray the values of diagnostic insight and therapeutic creativity. They seem to emphasize scientific findings and technologically sophisticated tests. Recognizing that these cases may be elaborated to become stories which portray patients' values, hopes, fears, and visions of the future may supply a technique that will also assist physicians to deal with ethical problems that they must face.

Sometimes we wonder why novels, short stories, and biographies speak to us so profoundly about our experiences. We may feel deeply informed about some part of life as we leave a play or film. The impact of fictional accounts comes from the authors' or artists' careful portrayals that highlight and dramatize the value issues surrounding characters and events. The stories then serve as parables, moral guides. If we learn to see ourselves and others as involved in the same kinds of stories, we may be able to develop similarly powerful insights into the real people and events with whom we must deal.

REFERENCES

Burrell D, Hauerwas S: From System to Story: an Alternative Pattern for Rationality in Ethics, *In* Callahan D, Englehardt Jr H, Tristam (eds), *The Roots of Ethics*, New York, NY, Plenum Press, 1981.

Fisher W: Human Communication as Narration: Toward a Philosophy of Reason, Value and Action, Columbia, SC, University of South Carolina Press, 1987.

Fisher W: Narration as a Human Communication Paradigm: the Case of Public Moral Argument, Communication Monographs, March 1 1984;51:1-22.

Jonsen A: The Therapeutic Relationship: Is Moral Conduct a Necessary Condition; *In* Shelp E (ed), The Clinical Encounter, Dordrecht Holland, D Reidel, 1983.

Medical Ethics Subcommittee, American Board of Pediatrics Teaching and Evaluation of Interpersonal Skills and Ethical Decision Making in Pediatrics, *Pediatrics* 1987;79:829-833.

Reich W: Bioethics in the 1980s: Challenges and Paradigms, in Sondheimer H (ed), Biomedical Ethics: a Community Forum, Syracuse NY, SUNY Upstate Medical Center Syracuse, 1985.

Smith D, Pettegrew L: Mutual Persuasion as a Model for Doctor-Patient Communication, Theoretical Medicine 1986;7:127-146.

Subcommittee on Evaluation of Humanistic Qualities in the Internist, American Board of Internal Medicine: Evaluation of Humanistic Qualities in the Internist, *An In Med* 1983;99:720-724.

the new DIRECTIONS in medicine

Consider a few features of **The Western Journal of Medicine:**

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

WJ1/87

Enclosed is $________ to cover ________ subscriptions.
Subscription renewal ☐ Regular subscription ☐
Foreign subscription ☐

TO: ________________________________

Street ________________________________

City/State/Zip ________________________________

Specialty ________________________________

Gift Card to read "From________________________________"

The Western Journal of Medicine

Please mail this coupon with enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year
$90 2 years

Scientific Issues in Drug Testing

AMA COUNCIL ON SCIENTIFIC AFFAIRS

Testing for drugs in biologic fluids, especially urine, is a practice that has become widespread. The technology of testing for drugs in urine has greatly improved in recent years. Inexpensive screening techniques are not sufficiently accurate for forensic testing standards, which must be met when a person's employment or reputation may be affected by results. This is particularly a concern during screening of a population in which the prevalence of drug use is very low, in which the predictive value of a positive result would be quite low. Physicians should be aware that results from drug testing can yeild accurate evidence of prior exposure to drugs, but they do not provide information about patterns of drug use, about abuse of or dependence on drugs, or about mental or physical impairments that may result from drug use.

The technology of screening for drugs in blood and urine has greatly improved in recent years, and it is now possible to determine drug levels in body fluids with a high degree of qualitative and quantitative accuracy. However, the most accurate analytic techniques are often quite expensive and, therefore, are not suitable for large-scale drug screening programs. Less expensive techniques often result in less accuracy, especially when they are not confirmed by more specific techniques.

Laboratory procedures are divided into screening tests and confirming tests. Screening tests are designed for maximum sensitivity, and specificity is often sacrificed. That is, in a screening procedure, it is important to use tests that yield few or no false-negative results, since a negative result terminates the testing process. Confirming tests, on the other hand, are more specific in that they separate true-positive from false-positive results, although some have high sensitivity as well.

Several important issues must be considered in developing a program for testing drugs in urine:

1. *What are the objectives of a testing program?* Is the tester interested in maximizing the likelihood of detecting any use of a wide variety of drugs, or is the tester more concerned with heavy use of a few substances? Is the tester monitoring a "general" population, in which the prevalence of drug use may be relatively low, or a population of known drug users or persons whose known clinical impairment may be a result of drug use? Will the results be used in a manner that may substantially affect a person's employment or reputation? These objectives must be clearly established before tests with appropriate sensitivities, specificities, and costs can be selected and before administrative policies can be formulated.

The selection of the population for testing is crucial, since the prevalence of drug use varies among populations, and the prevalence greatly affects the positive predictive value of the test, that is, the percentage of true-positive results in all the positive results. For a drug test that has 90% specificity and 99% sensitivity, if the prevalence of use of the drug is 1%, the predictive value is 9%. Thus, if 10,000 people are screened and 100 (1%) use a certain drug, 99 of these 100 would test positive (99% sensitivity) and 990 of the 9900 nonusers would test positive (10% false-positive or 90% specificity), so that the predictive value would be 99/1089, or 9%. Conversely, 91% of the positive results, on confirmation, would be found to be false. The predictive value increases to 52% at a 10% prevalence.

2. *How broad a screen should be performed?* Should a procedure test for only one or two substances or for a wide range of compounds? Although a narrow spectrum is less expensive, once the persons to be tested are aware of which drugs are included in the screen, they can switch to other drugs.

3. *What is the sensitivity of the screening procedure?* Most screening procedures are extremely sensitive and should detect drugs in 99% or more of the specimens in which they present at concentrations greater than or equal

---

From the Council on Scientific Affairs, the American Medical Association, Chicago.

Report J of the Council on Scientific Affairs, adopted by the House of Delegates of the American Medical Association, as amended in lieu of Resolutions 84 and 106, at the 1986 Interim Meeting.

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all the facts and circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and patterns of practice evolve. This report reflects the views of the scientific literature as of December 1986.

Reprint requests to Council on Scientific Affairs, American Medical Association, 535 N Dearborn St, Chicago, IL 60610 (William R. Hendee, PhD).

to a predetermined analytic cutoff level. However, specificity may be poor, with false-positive rates in some highly sensitive screening procedures as high as 35%.[1] To confirm the presence of a drug in the urine, it is necessary to use a second procedure,[2] which should be highly specific (>99%) for the drug reported in the screening procedure.

4. *What is the specificity of the confirming procedure?* Confirmatory procedures for both limited- and broad-spectrum screening programs can be expensive. Therefore, how the results will be used most often dictates which confirmatory procedures are employed. If results will be used solely for diagnostic purposes or to monitor progress in a rehabilitation program, tests that are often referred to as "clinical confirmatory procedures" may be used. These procedures must be highly reliable but would not be expected to withstand the scrutiny of litigation.

Results that may have an impact on the life, liberty, property, reputation, or employment of the person being tested must be able to withstand the scrutiny of litigation and therefore must meet forensic standards.

Forensic confirmations must (1) unequivocally establish the identity of the compound(s) detected, (2) quantitate the compound(s) detected, and (3) document a chain of custody.[3] The key for a forsenic confirmation is to establish objective criteria for testing and reporting and then apply the objective criteria to the laboratory data, reporting as positive *only* those specimens that fully meet the criteria.[4]

5. *Is there a well-documented chain of custody?* This issue is often overlooked. The urine should be collected under direct visualization to verify the source of the sample. The urine should then be labeled carefully to prevent intentional or inadvertent confusion of the samples. Each time a sample changes hands, an authorized person should sign for the sample and verify that it is in a sealed container. Chain-of-custody forms are designed to establish an audit trail so that a specimen's history can be reconstructed accurately for the court. The procedure is quite simple but requires diligence. The testing laboratory should save a portion of the sample in its original container for future testing should any question arise regarding the results.[5]

6. *What do the results of urine testing for drugs mean?* Within the limits of accuracy of the tests that are used and the administrative security of the program in which these tests are carried out, drug testing only differentiates between persons who have exposed themselves to the drugs being tested for and those who have not. The results do not give any indication of the pattern of drug use (method of administration, frequency of use, time of last use, or amount used), of whether the individual abuses or is dependent on a drug, or of whether an individual is impaired physically or mentally by the use of the drug. A possible exception to the latter limitation is testing of urinary ethyl alcohol, whose concentrations often can be correlated with blood alcohol concentrations, from which a degree of impairment may be determined.[6-10] For virtually all other drugs, the assignment of impairment from a single urine drug analysis is not possible. For this purpose, one must rely on overt behavioral signs or tests of cognitive function in addition to the drug analysis.

Athough a number of body tissues and fluids can be used for drug testing, the most common specimen is urine for the following reasons: (1) the collection of urine is not invasive, (2) large volumes can be collected easily, (3) drugs and their metabolites are generally present in other tissues or fluids because of the concentrations in urine than in other tissues or fluids because of the concentrating function of the kidneys, (4) urine is easier to analyze than blood and other tissues because of the usual absence of protein and cellular constituents, and (5) drugs and their metabolites are usually very stable in frozen urine, allowing long-term storage of positive samples.

There are also some disadvantages in using urine. Unless the specimen is collected under direct visual observation, there can be substitution of a "clean" urine sample for a "dirty" urine sample. Direct visual observation often is not pleasant for the person supplying the urine or the person watching. Many people find it difficult to urinate while being observed. Because of the social taboo of directly watching a person urinate, the observer often will not directly watch the collection of the urine, thereby permitting tampering with the sample. Ingenious techniques have been developed for substituting samples, including strapping a bag to the body containing a clean sample from which a catheter is run to the urethra so it appears that a sample is being collected directly from the patient. Samples also can be tampered with by dilution of the sample or by adding ions, such as salts, they may interfere with some testing procedures. Finally, if the collected urine is not carefully labeled and marked when it changes hands before the testing is done and there is not a clear chain of custody for the sample, the validity of the test can easily be challenged.

Urine drug testing should be carried out in a laboratory that is accredited by an appropriate accrediting agency, such as the Centers for Disease Control or the College of American Pathologists, and that engages in regular proficiency testing. The laboratory director should be a pathologist, other physician, toxicologist, or doctoral-level laboratory scientist who has extensive exerpience and background in analytic chemistry, clinical pharmacology, and/or forensic toxicology. The director should be qualified to interpret the results of the test procedures.

Testing Techniques

Table 1 compares the various testing techniques that are used presently.[11] Techniques that require treatment of samples prior to analysis are more prone to technical error. When major instrumentation is needed, the expense of the procedure increases. As can be seen from Table 1, no single technique is totally satisfactory in meeting all needs.

Table 1

COMPARISON OF COMMONLY USED ANALYTIC TECHNIQUES [11]

*Technique**	*Preanalysis Treatment of Sample*	*Major Instrumentation*	*Drug Identification*	*Can Specimen Be Adulterated*	*Limits of Sensitivity*	*Instrumentation Costs, $*	*Confirmation Required*	*Multiple Drug Analysis at Once*	*Level of Personal Experience*
TLC	Yes	No	Position on plate	No	1 μg/mL	.	Yes	Yes	High
Modified TOXI-LAB	Yes	No	Response to color reagents fluorescent pattern	No	0.2-5 μg/mL	500	Yes	Yes	Moderate
HPLC with scanning ultraviolet detector	Yes	Yes	Relative retention times; comparison of ultraviolet spectra with standards	No	0.02-10 μg/mL	20,000-50,000	No†	Yes	High
Dual-column capillary GC with nitrogen detectors	Yes	Yes	Relative retention times matched in both columns; comparison of peaks with standards	No	0.01-10 μg/mL	20,000-50,000	No†	Yes	High
Capillary GC/MS	Yes	Yes	Relative retention times; comparison of mass spectra with standards	No	0.001-5 μg/mL	20,000-200,000	No	Yes	High
EMIT	No	Yes	Variation in enzyme activity	Yes	0.025-5 μg/mL	7,000-100,000	Yes	No	Moderate
RIA	No	Yes	Variation of bound radiolabeled tracer	Yes	0.001-10 μg/mL	5,000-100,000	Yes	No	Moderate
Color or spot tests	No	No	Response to color reagents	Yes	0.1-10 ng/mL	...	Yes	No	Moderate

*TLC indicates thin-layer chromatography; modified TOXI-LAB, modified thin-layer chromatography; HPLC, high-performance liquid chromatography; GC, gas chromatrography; GC/MS, gas chromatography/mass spectrometry; EMIT, enzyme-multiplied immunoassay technique; and RIA, radioimmunoassay.

†Confirmation necessary only if results must meet a forensic challenge.

One of the most common concerns about drug testing is the duration of detectability of drugs in urine following the last use of the drug, which depends on the methodologies employed and the drugs themselves. Table 2 shows the approximate duration of detectability of selected drugs in urine and their limit of sensitivity for urine drug screening.[12-27]

Screening Techniques

Color or Spot Tests.—One of the earliest tests for detecting drugs was the spot test, which is performed by adding a small amount of urine to a reagent that turns a specific color if the drug is present. This test is most useful for finding drugs that are not detected by some of the broad-spectrum techniques described later herein. The advantages of the spot test are that it is easy to perform, does not require elaborate technology, and can be applied directly to an aliquot of urine or other biologic fluid. It is inexpensive because most of the reagents are readily available. The results are immediate and the test can be read by the eye. By adding spectrophotometric equipment to the testing procedure, a semiquantitative analysis can be done.

The spot test has two important disadvantages, however. First, a large number of drugs or metabolites can cause similar color changes, making it difficult to identify the exact compound present. Second, a relatively high concentration of a drug is needed to form the color reactions with the reagent. These two problems result in relatively high rates of false-positive and false-negative results. This type of test is most applicable when testing for salicylates,[28] ethchlorvynol (Placidyl),[29] and ethyl alcohol.[30]

Thin-Layer Chromatography.—Thin-layer chromatography (TLC) was one of the first analytic techniques used to screen for a broad spectrum of drugs. A number of different procedures have been developed over the years, with

Table 2

APPROXIMATE DURATION OF DETECTABILITY OF SELECTED DRUGS IN URINE [12-27]

Drug	*Approximate Duration of Detectability**	*Limits of Sensitivity of Analytic Techniques* (μmol/L)
Amphetamine	48 h	0.5 μg/mL (4)
Methamphetamine	48 h	0.5 μg/mL (3)
Barbiturates		
Short acting	24 h	
Hexobarbital		1.0 μg/mL (4)
Pentobarbital		0.5 μg/mL (2)
Secobarbital		0.5 μg/mL (2)
Thiamylal		1.0 μg/mL (4)
Intermediate acting	48-72 h	
Amobarbital		1.0 μg/mL (4)
Aprobarbital		1.5 μg/mL (7)
Butabarital		0.5 μg/mL (2)
Butalbital		1.5 μg/mL (7)
Long Acting	≥7 d	
Barbital		5.0 μg/mL (27)
Phenobarbital		1.0 μg/mL (4)
Benzodiazepines	3 d†	1.0 μg/mL (3)
Cocaine metabolites	2-3 d	
Benzoylecgonine		0.5 μg/mL (2)
Ecgonine methyl ester		1.0 μg/mL (3)
Methadone	≈3 d	0.5 μg/mL (1)
1,5-Dimethyl-3,3-diphenyl-2-ethylidene pyrrolidine (metabolite of methadone)		0.5 μg/mL (1)
Codeine	48 h	0.5 μg/mL (2)
Morphine		1.0 μg/mL (4)
Propoxyphene	6-48 h	0.5 μg/mL (1)
Norpropoxyphene		1.5 μg/mL (4)
Cannabinoids (11-nor-Δ^9-tetrahydrocannabinol-9-carboxylic acid)	3 d,‡ 5 d,§ 10 d,‖ 21-27 d¶	20 ng/mL (65)
Methaqualone	≥7 d	1.0 μg/mL (4)
Phencyclidine	≈8 d	0.5 μg/mL (2)

*Interpretation of the duration of detectability must take into account many variables, such as drug metabolism and half-life, subject's physical condition, fluid balance and stage of hydration, and route and frequency of ingestion. These are general guidelines only.

†Using therapeutic dosages.

‡Single use.

§Moderate smoker (4 times/wk).

‖Heavy smoker (smoking daily).

¶Chronic heavy smoker.

increasing versatility, sensitivity, and ease of operation.[31-35] Because of these developments, TLC probably is the analytic technique most applicable for broad-spectrum drug screening.

One major drawback of TLC techniques is that they require extraction and concentration of the sample to enable the drugs and metabolites to be removed from the myriad of endogenous compounds that may interfere with the sample's migration and identification. There are other drawbacks as well. It is not easy to save the detection information on hard copy, because photographic representations of the plate at each stage of detection do not reproduce the colors very satisfactorily. Also, the drugs may stain somewhat differently, depending on how fresh the reagents are, and the spots must be interpreted quickly by the eye before colors fade and before further staining is done to identify other types of drugs. Although it is rare that the two drugs have the same migration or color characteristics, when this does not occur it produces false-positive results. Finally, because of the broad range of drugs that TLC detects, it is not very specific, and other techniques must be used for confirmation.

Immunoassays.—In the past few years, immunoassay techniques have been widely used to detect drugs. These techniques are based on the ability to produce antibodies to various drugs. The two most commonly employed techniques are the radioimmunoassay and the enzyme-multiplied immunoassay technique.

Radioimmunoassay is based on the principle that a drug labeled with a radioactive substance competes for the antibody binding site with the same drug not labeled with a radioactive substance. The more unlabeled drug there is in the sample, the less radioactive drug binds to the antibody. After all reagents are mixed, the drug-antibody complex is precipitated and the radioactivity is measured in the supernatant. Because the level of radioactivity can be measured, these tests are semiquantitative. Radioimmunoassay can be used to detect opiates, barbiturates, amphetamines, benzoylecgonine (a cocaine metabolite), phencyclidine, cannabinoids, and LSD.

There are several problems with radioimmunoassays: (1) special training in the use of radioactive substances is required, and the laboratory must have an expensive gamma counter to analyze the radioactivity; (2) these tests are discrete, that is, only one drug may be tested for at a time; (3) if the urine is tampered with by the addition of various adulterants, uniformly false-negative results may be produced; and (4) linearity of response and cross-reactivity with other drugs may produce both false-positive and false-negative results.[36]

The enzyme-multiplied immunoassay technique is used more commonly than the radioimmunoassay technique. Its advantages are that it is rapid and semiquantitative and it can detect a number of drugs, including opiates, barbituates, amphetamines, cocaine and its metabolites, benzodiazepines, methaqualone, methadone, phencyclidine, and cannabinoids. Most of the instruments used in this technique are inexpensive.

The disadvantages of this technique are the expense of the reagents and the limited sources from which they are available. Urine specimens also can be adulterated to produce universally false-negative results. Other problems include difficulty with linearity of response and cross-reactivity with other drugs. It is not possible to predict which other drugs or metabolites may cross-react. For example, by chance the non-steroidal anti-inflammatory agents were found to cross-react with cannabinoids, amphetamines, and barbiturates. This technique was altered to eliminate these cross-reactivities. Table 3 shows possible cross-reactivity of tested drugs with commonly used prescription and nonprescription medications when

Table 3
POTENTIAL CROSS-REACTIVE PRESCRIPTION AND NONPRESCRIPTION MEDICATIONS IN RADIOIMMUNOASSAY OR ENZYME-MULTIPLIED IMMUNOASSAY TESTS [37]

Test Substance	*Possible Cross-reactors*
Amphetamines	Diethylpropion
	Dopamine
	Ephedrine
	Fenfluramine
	p-Hydroxyamphetamine
	Isoxsuprine
	l-Methamphetamine
	Methylphenidate
	Nylidrin
	Phentermine
	Phenylephrine
	Phenylpropanolamine
	Prophylhexedrine
	Pseudoephedrine
Barbiturates	Glutethimide
	Phenytoin
Opiates	Chlorpromazine
	Codeine
	Dextromethorphan
	Diphenoxylate
	Hydromorphone
	Meperidine
	Oxycodone
	d-Propoxyphene
Phencyclidine	Chlorpromazine
	Dextromethorphan
	Diphenhydramine
	Doxylamine
	Meperidine
	Thioridazine

radioimmunoassay and enzyme-multiplied immunoassay procedures are employed.[37]

Because of the limitations of both of these techniques, confirmatory tests are always required for positive results. Confirmation must not include another immunoassay technique.

A recent addition to the immunoassay procedures is fluorescence polarization immunoassay. Advantages of this technique are its ease of operation, its speed, and its ability to yield quantitative results automatically. Because the urinary concentrations of most drugs that are tested are found in the mid-range of the operational capability of this procedure, rather than near its lower limit of detectability, this technique is also highly sensitive. However, it is susceptible to sample adulteration, it is expensive, and, at present, it is limited in availability.

New products have appeared that offer urine testing of drugs directly to the lay public. These kits claim to make use of enzyme immunoassay precedures, which are performed after a specimen is mailed to a laboratory. These tests are marketed as a means for parents to detect drug use in their children or for employees to determine if they are at risk for detection, among other purported uses.

The use of these tests is fraught with problems. In addition to cross-reactivity, false-positivity, and susceptibility to adulteration that are present in all immunoassays, there are problems of lack of chain of custody, long specimen-transit times in the mail, unknown temperature conditions while in transit, unknown quality control in the receiving laboratory, and possibly the lack of competent medical expertise for the interpretation of results. "Positive" results probably would not be followed up by any confirmatory testing. The scientific and clinical bases for the valid use of these tests are questionable.

Confirmation Techniques

Gas Chromatography.—Gas chromatography is one of the most sensitive and specific techniques for detecting drugs in body fluids.[38-40] In recent years, new technology has allowed the use of dual, small-bore capillary columns in the gas chromatographic procedures, as well as new types of detectors, which increase the sensitivity and specificity of the procedure even more. The criterion used to establish identify of a compound using this technique is a matching of the retention time (ie, time from injection of a substance into the chromatograph until the substance elutes) of the unknown compound with that of the pure, known substance within a window of 0.05 minutes for each column. With proper application, the rate of false-positive results is less than 0.01%.[41]

Despite the high specificity, there are several drawbacks associated with gas chromatography. The first is the expense of the equipment and the need for highly trained personnel. Second, only one sample can be run at a time, making it much slower than most of the other testing techniques. Because two different types of columns as well as long temperature programs (ie, increasing the temperature to elute first the volatile and then the less volatile drugs) have to be used to identify many different drugs, this procedure is usually unsuitable for mass screening. However, gas chromatography has been used successfully to screen for hypnotics and sedatives,[42] nitrogen-containing drugs,[43] and volatile and nonvolatile alkaloids[44] in situations when sensitivity, specificity, and breadth of the procedure take precedence over speed. Gas chromatography is an excellent method for confirming the presence of drugs defected by more sensitive and broad screening procedures in a clinical, non-forensic setting.

Gas Chromatography/Mass Spectrometry.—One of the most specific tools for testing drugs is the technique of combining gas chromatography with mass spectrometry.[39,40] Gas chromatography/mass spectrometry combines the chemical separating power of the gas chromatograph with the molecular identifying power of the mass spectrometer. In its scanning mode, the gas chromatograph separates the compounds of the biologic extract and the mass spectrometer breaks down the eluting compounds into electrically charged ion fragments. Different compounds break down into different fragment patterns and, like fingerprints, no two fragment patterns are alike. The computer system controlling gas chromatography/mass spectrometry can match the fragmentation pattern of unknowns with analytic standards. The mass spectrometer also has a selected ion-monitoring mode that markedly increases the sensitivity of detecting low concentrations of compounds and is the most commonly used method for forensic confirmation of both the presence and the amount of drugs and metabolites isolated from biologic specimens.

One of the major drawbacks to all gas chromatographic techniques is the time it takes to prepare the sample before testing. Unless this is done properly, the results can be highly inaccurate. Furthermore, the gas chromatography/mass spectrometry equipment is enormously expensive, can process only one sample at a time, and requires a highly trained operator, thereby making this procedure beneficial only as a confirmatory procedure. Based on its accuracy, gas chromatography/mass spectrometry is the procedure that is most often used in forsenic work.

High-Performance Liquid Chromatography.—High-performance liquid chromatography has good sensitivity and high specificity. As with gas chromatography, an extraction of the drugs from the urine must be performed, and derivatives of the drug in question must be formulated with certain other substances to increase the sensitivity for detection. A recent improvement in the detection capabilities of high-performance liquid chromatography has markedly increased its discriminating power. Diode array/ultraviolet-visible spectral detectors permit capture of a complete ultraviolet-visible spectrum at several points on an eluting peak. Like a mass spectrometer in scanning mode, these ultraviolet-visible spectra can be matched by computer to the spectra of pure analytic standards, giving this procedure a high degree of specificity. Because of the expense of the equipment and the need for preperation, this technique is most applicable for confirming positive results from other screening techniques, although its acceptability in forensic settings has not been firmly established. Care must be taken to ensure that samples and controls are run under identical conditions. As the price of high-performance liquid chromatography equipment decreases, it will be used more widely.

Conclusions

Physicians should be familiar with the strengths and limitations of drug screening techniques and programs. Due to the limited specificity of the inexpensive and widely available screening techniques, forensically acceptable testing programs must include highly specific, technically more complicated, and more expensive confirmation techniques, which unequivocally establish the identities and quantities of drugs. Results from such drug testing programs can yield accurate evidence of prior exposure to drugs. Drug testing does not provide any information about patterns of drug use, about abuse of or dependence on drugs, or about mental or physical impairments that may result from drug use.

Physicians need to be aware of the objectives of a drug testing program in which they participate, and they should be satisfied that the selection of subjects to be tested and the screening and confirming techniques that are used meet the objectives. Since physicians often are called on to interpret results, they should be familiar with the pharmacokinetic properties of the drugs to be tested and the use to which the results will be put.

REFERENCES

1. Chamberlain J: Analysis of Drugs in Biological Fluids, Boca Raton, Fla, CRC Press Inc 1985, pp 122-125.
2. Caplan YH: Analytical techniques, in Baselt RC (ed): Introduction to Forensic Toxicology. Davis, Calif, Biomedical Publications 1981, pp 161-162.
3. Kogan JD: Expert testimony, in Baselt RC (ed): Introduction to Forensic Toxicology. Davis, Calif, Biomedical Publications 1981, pp 247-274.
4. Henion J, Covey T, Maylin G: Forensic mass spectrometry in equine drug testing. Spectra 1985, 10:21-28.
5. Dogoloff LI, Angarola RT, Price SC: Urine Testine in the Workplace. Rockville, Md, American Council for Drug Education, 1985.
6. Biasotti AA, Valentine TE: Blood alcohol concentration determined from urine samples as a practical equivalent or alternative to blood and breath alcohol tests. J Forensic Sci 1985, 30:194-207.
7. Payne JP, Hill DW, King NW: Observations on the distribution of alcohol in blood, breath and urine. Br Med J 1966, 1:196-202.
8. Morgan WHD: Concentrations of alcohol in samples of blood and urine taken at the same time. J Forensic Sci Soc 1965, 5:15-21.
9. Heise HA: Concentrations of alcohol in samples of blood and urine taken at the same time. J Forensic Sci 1967, 12:454-462.
10. Payne JP, Foster DV, Hill DW, et al: Observations on interpretation of blood alcohol levels derived from analysis of urine. Br Med J 1967, 3:819-823.
11. Bittirofer JA, Benton B: Rapid Drug Screening in the Hospital Clinic Laboratory. Kansas City, Mo, Marion Laboratories Inc, 1982.
12. Baselt RC: Disposition of Toxic Drugs and Chemicals in Man, ed 2. Davis, Calif, Biomedical Publications 1982.
13. Gorodetsky CW: Detection of drugs of abuse in biological fluids. Handbook Exp Pharmacol 1977, 45:319-409.
14. Clarke EG (ed): Isolation and Identification of Drugs. London, The Pharmaceutical Press 1969, vol 1.
15. Rutter ER: Automated method for screening urine for amphetamine and some related primary amines. Clin Chem 1972, 18:616-620.
16. Parker KD, Elliot HW, Wright JA, et al: Blood and urine concentrations of subjects receiving barbiturates, meprobamate, glutethimide, or diphenylhydantoin. Clin Toxicol 1970, 3:131-145.
17. Ravn-Jonsen A, Luding M, Secher O: Excretion of phenobarbitone in urine after intake of large doses. Acta Pharmacol Toxicol 1969, 27:193-201.
18. Waters N, Gaha TJ, Reynolds I: Random urine analysis from drug addicts in a methadone treament programme. Med J Aust 1975, 2:170-172.
19. Van Dyke C, Byck R, Barash PG, et al: Urinary excretion of immunologically reactive metabolite(s) after intranasal administration of cocaine, as followed by immunoassay. Clin Chem 1977, 23:241-244.
20. Hamilton HE, Wallace JE, Shimek EL Jr, et al: Cocaine and benzoylecgonine excretion in humans. J Forensic Sci Soc 1977, 22:697-707.
21. Lui CT, Adler FL: Immunological studies on drug addiction: Antibodies reactive with methadone and their use for detection of the drug. J Immunol 1973, 111:472-477.
22. Amundson ME, Johnson ML, Manthey JA: Urinary excretion of d-propoxyphene hydrocholride in man. J Pharm Sci 1965, 54:684-686.
23. Levine S: EMIT dau and EMIT st Urine Cannabinoid Assays: Accuracy, Passive Inhalation and Detection Time in Clinical Studies. Palo Alto, Calif, Syva Co, 1983.

24. Dackis CA, Pottash ALC, Annitto W, et al: Persistence of urinary marijuana levels after supervised abstinence. Am J Psychiatry 1982, 139:1196-1198.

25. Kogan MJ, Jukofsky D, Verebey K, et al: Detection of methaqualone in human urine by radio immunoassay and gas-liquid chromatography after a therapeutic dose. Clin Chem 1978, 24:1425-1426.

26. Gupta RC, Lu I, Oei GL, et al: Determination of phencyclidine (PCP) in urine and illicit street samples. Clin Toxicol 1975, 8:611-621.

27. Ellis GM: Excretion patterns of cannabinoid metabolites after last use in a group of chronic users. Clin Pharmacol Ther 1985, 38:572-578.

28. Trinder P: Rapid determination of salicylate in biological fluids. Biochem J 1954, 57:301-303.

29. Frings CS, Cohen PS: Rapid colorimetric method for the quantitative determination of ethchlorvynol (Placidyl) in serum and urine. Am J Clin Pathol 1970, 54:833-836.

30. Kozelka FL, Hine CH: Method for the determination of ethyl alcohol for medicolegal purposes. Ind Engl Analyt Chem Educ 1941, 13:905.

31. Sunshine I: Use of thin-layer chromatography in the diagnosis of poisoning. Am J Clin Pathol 1963, 40:576-582.

32. Sunshine I, Fike WW, Landesman H: Identification of therapeutically significant organic bases by thin-layer chromatography. J Forensic Sci 1966, 11:428-439.

33. Davidow B: Li Petri N, Quame B: A thin-layer chromatographic screening procedure for detecting drug abuse. Am J Clin Pathol 1968, 50:714-719.

34. Heaton AM, Blumberg AG: Thin-layer chromatographic detection of barbiturates, narcotics, and amphetamines in urine in patients receiving psychotropic drugs. J Chromatogr 1969, 41:367-370.

35. Kaistha KK, Jaffe JH: TLC techniques for identification of narcotics, barbiturates, and CNS stimulants in a drug abuse urine screening program. J Pharm Sci 1972, 61:679-689.

36. Chamberlain J. Analysis of Drugs in Biological Fluids. Boca Raton, Fla, CRC Press Inc 1985, pp 115-136.

37. Baselt RC: Urine drug screening by immunoassay: Interpretation of results, in Baselt RC (ed): Advances in Analytical Toxicology. Foster City, Calif, Biomedical Publications 1984, vol 1, pp 81-123.

38. Mule SJ: Routine identification of drugs of abuse in human urine: I. Application of fluorometry, thin-layer and gas-liquid chromatography. J Chromatogr 1971, 55:255-265.

39. Costello CE, Hertz HS, Sakai T, et al: Routine use of a flexible gas chromatography-mass spectrometer-computer system to identify drugs and their metabolites in body fluids of overdose victims. Clin Chem 1974, 20:255-265.

40. Ullucci PA, Cadoret R, Stasiowski PD, et al: A GC/MS drug screening procedure in current use. Clin Chem 1976, 22:1197-1198.

41. Frethold D, Joves P, Sebrosky G, et al: Testing for basic drugs in biological fluids by solvent extraction and dual capillary GC/NPD. J Anal Toxicol 1986, 10:10-14.

42. Newton B, Foery RF: Retention indices and dual capillary gas chromatography for rapid identification of sedative hypnotic drugs in emergency toxicology. J Anal Toxicol 1984, 8:129-134.

43. Hime GW, Bednarczyk LR: Identification of basic drugs in urine by dual fused silica capillary column GC. J Anal Toxicol 1982, 6:247-249.

44. Kvoppasalmi K, Karjalainen V: Doping Analysis in Helsinki 1983: The First IAAF World Championships. Helsinki, Clinical Chemistry Research Foundation Library 1984, vol I.

AIM HIGH

A PRESCRIPTION FOR PHYSICIANS.

Bothered by:

- ★ Too much paperwork?
- ★ The burden of office overhead?
- ★ Malpractice insurance costs?
- ★ Not enough time for the family?
- ★ No time to keep current with technology and new methods?
- ★ No time or money for professional development?

Join the Air Force Medical Team. We'll provide the following:

- ★ Competent and dedicated professional staff.
- ★ Time for patients and for keeping professionally current.
- ★ Financial security, a generous retirement for those who qualify.
- ★ If qualified, unlimited professional development.
- ★ Medical facilities all around the world.
- ★ 30 days of vacation with pay each year.
- ★ Complete medical and dental care.
- ★ Low cost life insurance.

Want to find out more? Contact your nearest Air Force recruiter for information at no obligation. Call

TSGT Joe Laferriere
203-745-1128
Collect

AIR FORCE

88
NEW YORK

American College of Physicians presents 69th Annual Session March 3–6, 1988 Jacob K. Javits Convention Center

Medicine's foremost educational opportunity in the nation's most exciting city

☐ More than 200 presentations for a curriculum suited to your needs
☐ Critical findings in Molecular Biology and Clinical Medicine in six State of the Art lectures
☐ Pre-Session courses on critical care, geriatrics and infectious diseases
☐ Clinical controversies featured in 12 panel discussions
☐ Analyses that confront the social, ethical and environmental issues surrounding today's dilemmas
☐ Rewarding activities planned especially for family and guests

Request Your 1988 Scientific Program Guide

The Scientific Program Guide—with schedules, course and faculty lists, registration and housing information, and the family and guest program—enables you to plan the most valuable, personalized Session possible. Because many popular programs fill up quickly, you'll want to schedule your curriculum well in advance. Reserve your copy now by filling out and returning the request form.

YES, mail me the
'88 Scientific Program Guide

PLEASE PRINT
NAME
ADDRESS

CITY/STATE/ZIP
Telephone toll-free: (800) 523-1546 ext. 3675
In Pennsylvania: (215) 243-1200 ext. 3675
☐ ACP Member ACP# _ _ _ _ _ _
☐ Nonmember CT 11

American College of Physicians
4200 Pine Street
Philadelphia, PA 19104

View from the Hill

JAMES E. BRYAN

It is a given that both Western society and American medicine will continue to evolve in a startling and unpredictable fashion, and at a mercurial pace. The medical scene today and tomorrow—more urgently perhaps than in any earlier time—demands that physicians and community leaders take counsel and shape common policies and goals. The need for mutual understanding between those who treat and those whom they would serve has never been more acute. Two months ago, this column cited the question raised by the editors of *The Internist* and *The New England Journal of Medicine:* "What kind of doctor will (or should) we be producing in America to meet the needs of tomorrow's American patients?" In a new book, *America's Health in the Balance: Choice or Chance?* Howard Hiatt, M.D., a highly esteemed Harvard physician and former medical school dean, points to a growing popular concern with the efficacy, necessity and appropriateness of some of the professional medical services rendered today.

The very title of Dr. Hiatt's book implies that American medicine is in a state of evolutionary—if not revolutionary—flux, and that it presents disparate options and urgently requires crucial choices. Dr. Hiatt's book directs its challenge equally to the profession and the public, questioning the current attitudes and values of both parties.

Dr. Hiatt suggests that despite impressive scientific and technologic achievements as well as seemingly unstinting popular confidence, modern medicine is almost irrelevant to the real needs of many people and quantitatively inadequate to the requirements of many others. A happy matchup does not always exist. For example, he notes the frequency of questionable surgery, superfluous tests, overmedication and other flaws in a system in which physicians must often yield to a defensive mode of practice, and who do not always recognize the social and economic consequences of providing extravagant services.

Particularly regrettable, in Dr. Hiatt's view, is that only a paucity of physicians effectively perform the "gatekeeper" function, which he looks upon as a logical and necessary role of the modern family physician. It must be acknowledged that gatekeepers come in various forms, involving a wide range of functions and responsibilities. The concept of an "all-out" professional, administrative and risk-underwriting gatekeeper, a role that some physicians have assumed, seems to me somewhat beyond the normal expertise of the physician, and a serious (albeit unwitting) adventure into the commercial penumbra of professional medicine.

Nonetheless, the degree of acceptance by family physicians, general internists and other primary care physicians of the role as central counselor and guide to the health care maintenance of patients and their families appears to be a key factor in assuring the best available care at the least cost for the patient. Perhaps establishing and preserving this relationship depends equally on the knowledgeability of the patient and the acceptance of that knowledge by the physician.

One hopes that family physicians may come more and more to function implicitly in the manner articulated recently by Robert H. Taylor, M.D., president of the AAFP, as "the commitment to patient advocacy [that] will remain the common pathway of family physicians." Significantly, Dr. Taylor warned of the pervasive threat of the "corporate mentality" demeaning both the quality of and access to health care services. He deplored the commercial emphasis on the "bottom line," which is inevitable in competitively price-focused plans, and is part of the corporate mentality so clearly antithetical to the integrity and autonomy of American medicine.

If the oft-repeated dictum is still valid that three-quarters of the presenting complaints bringing patients to their physicians' offices can be completely treated by a skilled family physician, then it is indeed time for medicine and the people to make common cause in upending the absurd medical hierarchy in which a minority of generalists is buried beneath expanding layers of specialists. As a possible consequence of this and related anomalies in modern medical practice, Dr. Hiatt declares that the "caring" aspect of medical practice is too often lost in the scientism of the specialist on the one hand and in the growing pressures of "competition," commercialism and cost control on the other.

In summary, Dr. Hiatt appears to find in the restitution and exercise of the generalist function not only the most effective and satisfying doctor/patient relationship, but also

---

JAMES E. BRYAN, Washington Correspondent, *American Family Physician*.

Reprinted from *American Family Physician*. Copyright 1987 by American Academy of Family Physicians.

the key to the most economical, cost-effective health care program for all concerned.

As Dr. Hiatt reminds us, the enactment of Medicare and Medicaid in 1965 led many to believe that the major problems of ensuring access to quality medical care to members of the two major sectors of the public then least able to afford it, the poor and the elderly, had been solved.

The troubles and vexations, as well as the impressive benefits of Medicare, are well known to the profession. But Medicaid, for many, is a bundle of confusion as to its purpose and procedure, means and ends. Much of the confusion stems from the fact that, with minor and scattered exceptions, Medicaid has been diverted from its intended role and function. Administered by the states under broad federal guidelines, Medicaid provides federal funds on a formula basis to enable the states and local communities to finance the provision of medical care to the medically indigent (i.e., those individuals who can meet their regular basic living costs, but need financial help when confronted by serious or prolonged medical problems). In a word, Medicaid was designed to enable the poor but self-sustaining families to keep "off welfare." Unfortunately, Medicaid has been diverted to basic welfare medicine and to the maintenance of nursing-home residents. The vast army of Medicaid-eligibles is being augmented daily by the newly homeless, displaced and disemployed workers, and by the exclusionary policies of mental care institutions.

Ironically, as medical science continues to potentiate the art of medicine, and as doctors and patients learn to make their relationship more productive, the federal establishment, afflicted with largely self-imposed stringencies, constrains its help precisely where the needs are most urgent and the potential benefits most attractive. If ever there was an enterprise where the proverbial ounce of prevention would pay off, it is in optimal application of preventive and supportive medicine for infants, mothers and children.

In contradiction of those who assert that America cannot support the costs of universally accessible medical care, Dr. Hiatt cites the example of our Canadian neighbors. The Canadians appear to have met this test, and at a substantially lower cost per citizen than we have been cautioned to contemplate for a comparable social investment in the health and welfare of our fellow Americans.

Ask any American retiree who has tried to make sense of Medicare's documentation of services rendered and compensation allowed or withheld for such services by the hospital and physicians, or ask someone who has wrestled with the procedures and stipulations of Medicaid and the local welfare office in the process of admitting some unfortunate friend to a nursing home: Ask them how they would rate the efficacy of America's vaunted "incremental approach" to a universal problem, the hazards and costs of which are inevitably shared by all of us. Let us start, as Dr. Hiatt suggests, by recognizing that "health policy is social policy."

BOOK REVIEW

Clinimetrics

By Alvan R. Feinstein, M.D., New Haven and London: Yale University Press, 1987. 272 pp. $25.00

Alvan Feinstein, Professor of Medicine and Epidemiology at Yale, has created an important book for clinical researchers and for those who formally analyze published medical studies. The author has previously written textbooks on, among other topics, both clinical judgment and clinical statistics; in many ways clinimetrics represents a fusion of these disciplines. Feinstein defines clinimetrics, a term of his own creation, as "the domain concerned with indexes. . .and other expressions that are used to describe or measure symptoms, physical signs, and other distinctly clinical phenomena in clinical medicine." Its stated purpose is to refine and enable, not to replace, humane bedside medicine. The abundant illustrative examples, such as the New York Heart Association functional classification for symptoms in heart disease, richly support this contention. In some ways the term represents a new label for an old act of clinical assessment. The importance of the new label lies in requiring the most rigorous construction possible, so that the intrinsically numerically "soft" but humanly essential subject matters, such as pain, can be integrated into mathematical analysis of medicine, for example, the evaluation of efficacy of a new therapeutic regimen.

The author's numerous citations of specific clinimetric indexes leaven a mass of highly abstract and technical concepts. Diverse clinical rating scales, including the classic Apgar, are used to illustrate the evolution, employment, construction, and testing of clinimetric indexes. Of particular note to investigators are meticulous, probing discussions of the subtle as well as the obvious conflicts that can arise between clinical sensibleness and statistical validity. The development of a rational theory and utilitarian checklist for sensibleness fills a vacuum in the interdependent interaction between clinician and clinical statistician. A beautifully realized account of a careful research project that failed because of the differing perspectives of psychometricians and clinicians rounds out this part of the book.

In the title of an earlier paper, Dr. Feinstein called clinimetrics a new basic science for clinical medicine. Whether others assign clinimetrics that role or not, *Clinimetrics* shares the density of information and concept, the precision, the often dry and complex prose, and the difficulty of advancing that characterize many basic science textbooks. This is not a book to be approached casually or to be read through once and quickly. Yet it deserves close and repeated attention by all prospective and actual clinical researchers, for the many fine insights on the fundamental nature of clinical investigation, and for tremendous help in avoiding conceptual and practical pitfalls in that research. This world-class coaching is available for the reading.

Farmington, CT Henry Schneiderman, M.D.

Current Medicolegal Issues

AMA–THE CITATION

AMA And The Supreme Court

An important part of the role of AMA's Office of the General Counsel (OGC) is to protect physician and patient interests in the courts, particularly the United States Supreme Court. This past year AMA was involved as a direct party, or as a friend of the court, in six Supreme Court cases. Five of these cases have been decided in the last few weeks. Let me briefly review three of the cases for you because I believe the precedent they establish will be with us for a long time and will affect the practice of medicine in ways beyond the particular context in which the cases arose.

In *Otis R. Bowen, Secretary of Health and Human Services, Petitioner v. American Hospital Association, et al.* (the *"Baby Doe"* case), the Court at our urging strongly reaffirmed the importance of parental, physician, and community involvement–as opposed to heavy-handed Federal intervention–in the difficult decisions regarding treatment of severely impaired infants. The government had issued regulations which set up an elaborate mechanism in hospitals to generate reports about discrimination against handicapped infants, including "hot lines," intimidating notices, on-site investigations, and patient and hospital records production. The Court found no evidence of any discrimination and struck down the regulations. The Court concluded with the finding that Section 504 of the Rehabilitation Act "does not authorize the Secretary to give unsolicited advice either to parents, to hospitals, or to state officials who are faced with difficult treatment decisions concerning handicapped children."

The Court ruled against an association of dentists in *FTC v. Indiana Federation of Dentists* who mistakenly believed that by simply declaring themselves a "union" they could avoid the antitrust laws and collectively refuse to comply with insurance company cost containment programs. However, in accordance with views we expressed, the Court did *not* foreclose appropriate consideration of ethical and quality of care considerations in Federal antitrust actions.

We expressed no opinion with regard to the underlying merits of the abortion controversy in *Thornburgh, et al. v. American College of Obstetricians and Gynecologists, Pennsylvania Section, et al.*, but we did inform the Court in that case of the nature and importance of the physician/patient relationship in all medical treatment matters. The Pennsylvania statute at issue placed substantial, nonmedical informational, reporting and treatment burdens on physicians, even in cases where pregnancy endangered the life of the woman. The Court struck down the statute, concluding that: "All this is, or comes close to being, state medicine imposed upon the woman, not the professional medical guidance she seeks, and it officially structures–as it obviously was intended to do–the dialogue between the woman and her physician."

We were gratified with the results in these cases. The cases also may well serve as useful precedent in protecting physician autonomy in contexts other than that in which they arose.

New AMA Initiative On Quality Assurance

There has been a great deal written and said recently about incompetent doctors and the perceived inability of the medical profession to detect and discipline them. It is hard to know with any precision how many incompetent doctors are practicing, but we believe the number is quite small. There are a great variety of informal and formal mechanisms to detect and deal with incompetents.

Physicians regularly engage in self-policing in a most basic and important way–they don't refer patients to questionable colleagues–and, in accordance with criteria mandated by the Joint Commission on Accreditation of Hospitals, physicians on hospital medical staffs restrict or deny hospital privileges to physicians believed to provide less than the best medical care. Physicians and their organizations also work closely and effectively with medical disciplinary boards in many states, and procedures for quality assurance, peer review and discipline are largely

---

THE CITATION is a newsletter on medicolegal issues prepared by the Office of The General Counsel of the American Medical Association.

in place today in every state. Medical societies have drafted or supported much of the recent legislation which has strengthened those procedures.

True incompetence or serious impairment which goes completely unchecked occurs, but not commonly. Even where state disciplinary boards are underfunded and understaffed, their performance is better than generally perceived. For every officially reported sanction by a state board, ten times as many cases are handled by the boards in unreported yet binding agreements which both protect the public and permit good physicians with problems to be rehabilitated.

But the profession can and must do more. The public tends to measure the effectiveness of quality control by the number of official license revocations by state medical disciplinary boards. And on that measure, the record is not good overall. Because of the fear of personal liability, physicians are reluctant to report colleagues to state medical boards, and adverse hospital review determinations too often stay within the hospital. Peer review can be more careful, vigorous and uniform, and too little scientific evaluation of the efficacy of quality assurance and risk management programs has been undertaken.

At its Annual meeting this June the AMA Board of Trustees announced a new AMA initiative on quality assurance. The elements of the initiative are as follows:

1. The AMA will call on all physicians to renew their commitment to report professional misconduct and incompetence and to participate actively in peer review. AMA will assist in the defense of any county, state or national medical society that incurs litigation as a result of the society's good faith efforts at peer review and reporting incompetence.
2. The AMA will expand and improve its physician Masterfile databank so that any hospital medical staff or other appropriate body seeking to verify the credentials of any physician, including past disciplinary actions by state medical boards, the Department of Health and Human Services or other hospitals, may receive complete record verification within one week.
3. The AMA will expand its activities in defining quality of care, maintaining high education and residency standards and in evaluating quality assurance systems.

The quality of medical care, and of the provider of care, has never been higher in this country. Organized medicine must work to keep it that way.

Malpractice Panel Does Not Have To Provide Patient With Transcript

A patient was not entitled to have a transcript of a medical-legal panel hearing of her malpractice complaint, the Montana Supreme Court ruled. The patient filed a malpractice action against two physicians who had treated her. At a prehearing conference, the patient requested permission to have a stenographic record of the upcoming panel hearing made. The physicians opposed the request, and the panel chairman ruled that no transcript would be made. The trial court ruled that denial of the transcript violated due process of law. On appeal, the supreme court said that due to the confidential nature of the panel and its proceedings, a transcript should be made available only if no participant objected. There was no statutory requirement that any form of transcript be provided, and the panel had full authority to issue its own rules of operation, the high court said. Denial of a transcript did not arbitrarily deny the patient due process rights, the court concluded.

State of Montana ex rel. Hufford v. Montana Medical-Legal Panel, 724 P.2d 186 (Mont. Sup. Ct., Aug. 26, 1986).

Notice To Parents Before Abortion On Minor Found Proper

An unemancipated minor had no standing to challenge the constitutionality of the state statute that required a physician to notify parents of an immature minor before performing an abortion on the minor, a federal trial court in Utah ruled.

The 17-year-old girl was living at home and unemployed. When she became sexually active with her boyfriend, she neither obtained nor used contraception, believing that if she became pregnant she could easily obtain an abortion without her parents' knowledge. When she did become pregnant, she went to a woman's center, where she talked with a social worker and was examined by a physician. When the social worker recommended that she discuss the matter of an abortion with an adult outside the center, she talked with 16- and 17-year-old friends and her boyfriend's brother, who was in his early twenties. She and her boyfriend did not intend to marry, and she wanted to attend college.

The minor sought to enjoin application of the statute requiring parental notification. After the case was argued, the court questioned the minor in chambers and then rendered an oral decision denying injunctive relief, finding the minor to be without standing to challenge the statute.

The court pointed out that the minor did not live in a hostile home environment but had loving and concerned parents. Although she expressed herself well, the court found her expectations to be unrealistic. She showed this by her reliance on advice of teenagers, her expectation of keeping her secret from her parents, particularly if medical complications were to arise, her failure to use contraceptives, and her cavalier attitude about the ease of abortion. The court found her to be immature and to lack the experience, perspective, and judgment to recognize and avoid detrimental choices.—*H________ B________ v. Wilkinson*, 639 F. Supp. 952 (D.C., Utah, June 5, 1986).

Personnel Concerns in the Medical Office

DOROTHY R. SWEENEY, PATRICIA M. SALMON AND M. EILEEN McKIERNAN

Medical office management and administration is even more important today as outside influences require a practice to be run as a business. Even solo or small-group physicians, who never really worried about "management," are trying to become more organized. Personnel concerns, billing and collection problems, computerization, insurance coding, and scheduling—all of these items combine to require someone, a doctor or a manager, to be knowledgeable about the intricacies of running a business. The economic realities of competition, government pressures, consumerism, and third party reimbursement also warrant the business approach.

In our work with medical practices throughout the state and elsewhere, we perform "general practice surveys" for all sizes of practices. These assignments often begin when physicians or groups recognize the need for organization and management, but they need help in implementing new methods.

This series of articles will deal with major problems we encounter from these surveys. This first article deals with leadership and personnel issues. Since personnel costs are the major expense item in any medical practice budget, sufficient time and attention must be devoted to the people working in the practice. Ineffective employees working in a setting with poor morale will not present a pleasant atmosphere for patients or doctors. Even efficient business systems will be ineffective with the wrong staff.

Article two will discuss billing problems we routinely encounter. With all of the various insurances, coding headaches, and collection delays, finances play a vital role. The third article in the series will discuss a variety of other business system deficiencies.

Medical practices—solo, small group, or large group—are businesses. We offer suggestions in these articles to help you structure your practice accordingly.

Physician Leadership

In small and medium sized medical practices, tradition has been to have a democratic form of management. All physicians (or all "partners") have an equal voice in business decisions. This democratic form of government may keep everyone involved, but in the day-to-day management it poses problems. If doctor-level management is not structured properly, the other levels of management may falter, too.

Managing Doctor

One popular solution is to designate a member, perhaps on a rotating basis every year or two, as the group's "managing doctor." Picking that "managing doctor" is often very difficult if no business leader is apparent. Rotating leadership is not our favorite choice. It causes doctors to assume important responsibility whether or not they are suited for it. In some cases, though, it is the best or only palatable way available to have a managing doctor structure at all.

The selected person's responsibilities will be better carried out if they are defined for everyone involved. What are those responsibilities?

Some of the duties are specific; they can be written into a managing doctor's job description. Others are subjective, depending on the personalities of both that individual and his or her partners. The latter functions include serving as the communications link among the physicians and providing a leader's influence over the physicians and staff members. They can hardly be written down despite their importance.

Here are some of the more traditional, specific responsibilities—that can be listed on paper—we recently recommended to a four-doctor group establishing the managing doctor concept:

1. Serve as chairman of the partners' business meetings, preparing an agenda for each meeting and assuring that the meeting's decisions are carried out.

2. Assign tasks to the lay office manager and outside advisors, and see that those responsibilities are properly handled.

3. Make all routine decisions and have them implemented satisfactorily.

4. Meet with the office manager on a regularly scheduled basis to assure a continuity of leadership over that person's work.

The authors are medical management consultants with the Health Care group, Bala Cynwyd. This article is the first in a series on medical office management and administration.

5. Take responsibility for signing or co-signing checks, approving accounts receivable write-offs, etc.

6. Convene periodic office staff meetings to provide physician-level involvement in the lay employees' concerns.

While many other duties could be added to the list, and some arise without prediction or definition, having a basic description in writing will help the managing doctor carry out his or her assignment.

Business Managers

Almost every medical practice has an office manager or senior assistant who is in charge of the office. Often those "managers" perform a variety of clerical duties, but do not function as business managers. The trend we see, and the advice we often give, is to upgrade the administrative management level, even for small and mid-sized groups. This sometimes presents a problem when long-term employees initially feel threatened by someone new coming to "be in charge."

The duties for such a business manager or administrator are very different from the former "office manager/senior assistant's." In our view, a business manager needs to be concerned with the broader picture—delegating, planning, supervising, and coordinating—with specific responsibility for the following:

Coordination

1. Attend doctors' meetings to record discussions from decisions. Implement any ideas arising from that meeting, investigate alternatives, etc.

2. Coordinate activities among physicians on a day-to-day basis.

Financial

1. Assist with proposed annual budget.

2. Approve all expenditures.

3. Prepare, review, and analyze monthly statements.

4. Prepare special financial studies, and reports requested by doctors or as determined necessary.

5. Contact accountants, attorneys and other advisors.

6. Do all practice checkwriting, including payroll for physicians and staff. Monitor practice savings and checking accounts.

7. Prepare payroll tax reports and returns.

Personnel

1. Recruit, hire, and fire office personnel.

2. Supervise, including salary review and proposed adjustments.

3. Maintain control and keep records of vacations, sick leave, etc.

4. Organize regular office meetings and set agendas.

5. Determine and change personnel assignments and job descriptions as needed.

Collections

1. Institute a system to handle delinquent account follow-up, including telephone and preprinted letter. Work with collections clerk to monitor results.

2. Use Small Claims Court to handle accounts not paying.

Audit Controls

1. Review and supervise internal systems for handling cash, recording mail receipts, writing checks, etc.

2. Follow-up audit control systems devised by accountants.

There is no set background or experience required for the business manager's position. We prefer a solid business background of experience and schooling with a strong emphasis on finances, computer, and personnel. Medical office experience is, of course, a plus, but not essential. Physicians often argue with us on this point, but we stress this is a *business leadership* position. We are not looking for an insurance clerk or a receptionist.

This business manager will most likely have an undergraduate or advanced degree and can command a salary in the wide range between $25,000 to $45,000.

While we talk about education and business experience, there are also intangible factors required of a business manager.

Finding and developing these character features, though vague, can make the difference between effective managment and average performance. Here is a list:

1. *Initiative* Any manager, to be effective, must make things happen. He or she needs to act—not react—to anticipate any situation or problem. While the physician-owner(s) are ultimately responsible, an effective manager cannot wait for them to initiate action in the business side of practice.

2. *Flexibility* No medical practice, no matter how well organized, always runs in a predictable manner. Disruptions and emergencies are facts of life. A manager must anticipate these possibilities so the office runs well in spite of them.

3. *Enthusiasm* The best managers must enjoy their work, their co-workers and the office environment. This does not mean a manager should overwhelm everyone with joy, but a sense of enjoyment and personal satisfaction should be apparent.

4. *Innovative, but practical* While somewhat at odds with each other, both of these characteristics are vital. New ideas and fresh approaches are always needed in a medical office. Yet the new approaches must succeed in a day-to-day setting, often requiring delicate balance.

Poor Hiring Techniques

Inattention to proper hiring techniques ranks high on the list of medical practice problems. The hiring process takes time and a busy physician or manager will sometimes settle for the best person in a mediocre group just to fill the position, especially if time is short, and an opening is not filled when the former employee leaves. This can be a costly mistake, since the marginal new employee does not usually become an effective member of the business team. He or she is eventually either replaced or leaves.

Another common pitfall is hiring friends or relatives of physicians or employees. This can have disastrous results. Should that new person not work out, the physicians or employees are placed in an awkward position. We hear stories of mediocre employees being kept in a medical practice merely because the physician is too embarrassed to take any action to terminate employment. A good rule is not to hire friends or relatives of the physician, the physician's spouse, or other members of the staff.

This rule also applies to physician's children, even on a part-time basis. Often "make work" is created, or, worse yet, actual duties are neglected when the doctor (and thus the whole family) is on vacation. In group situations we have seen three or four sets of children vying for clerical duties.

In hiring, many practices fail to administer skill tests to applicants. Job related tests are a legally valid measure to assure that the applicant has the necessary skills.

In addition, it is essential that a complete job description be available to the prospective applicant. This protects both the practice and the applicant. The applicant will be able to judge if the position is truly what he or she is seeking. Nothing is gained by hiring someone overqaulified only to have that person leave within several weeks, necessitating that the hiring practice begin again.

Staff involvement in hiring is overlooked by many physicians. The present staff will work closely with this new employee, and it is important that a good team feeling and a mix of personalities be developed. If physicians or managers do all of the interviewing themselves, they might hire an employee whose personality does not mesh well with others already on board. This can lead to dissension and unhappiness for all concerned.

While it does not always guarantee success, it is a good idea to have the present office staff (or a staff representative) do some of the initial interviewing. Asking the present staff's opinion of an employee being interviewed also goes a long way for creating good morale.

Improper Staff Evaluations

Too many medical offices have no regularly scheduled procedure for reviewing employees' job performances. Similarly, many practices routinely grant increases of the same amount or same percentage to everyone without critically determining if they are deserved.

Physicians tell us they grant the same salary raise to everyone because "it is easier" and because they do not want to hurt someone's feelings by giving them a lower raise than others (even if it is deservedly so). This is a guaranteed way to cause morale problems! The good employee is punished for good performance—a mediocre employee recieves the same increase.

We believe each office should have a regularly scheduled (preferable annual) job evaluation and salary discussion for each individual employee. This evaluation should be an open, two-way communication in which an employee's strengths and weaknesses are freely discussed.

Salary increases should be discussed at this time, reinforcing the fact that job performance is the sole determining factor in granting raises. It is unfair for good, hardworking employees to receive the same raise as someone who is not as conscientious, often absent or late, and who does not pull his or her share of the work load. And, in this way the doctor can stick to the policy of annual evaluations only. Employees will thus recognize salary reviews are handled only once a year and not at other times.

Communication

Failure to communicate is often a problem in medical practices as the rush of day-to-day problems and concerns fails to allow time for the communication process. Employees need to talk to management, and managment needs to talk (and listen) to employees.

Regular office staff meetings are essential to facilitate this communication process. Meetings should be at a set time and day, not just when a crisis occurs. Managers are the key to making these meetings work so that they are handled in a professional way. Agendas of topics to be discussed, two-way discussions, and a set routine should prevent the meetings from deteriorating into gripe sessions.

Physicians should periodically attend office staff meetings, but they are often more effective if the doctors do not attend routinely.

Good personnel can make the medical practice. But good leadership, morale, and communication do not happen automatically. The development of these qualities requires time and attention, but the dividends make the investment worthwhile.

AROUND THE STATE

Dr. Chessin Receives an Award

Robert D. Chessin, M.D., Fairfield, has been given the Dr. Melville G. Magida Award for 1987. This award is presented annually by The Richard and Hinda Rosenthal Foundation in cooperation with the Fairfield County Medical Association to a young physician who has demonstrated notable capability in patient care and sensitivity to the need for good patient-physician relationships.

Dr. Chessin is a board certified pediatrician affiliated with Children's Medical Grroup in Bridgeport and Shelton, and on the staff of Bridgeport Hospital where he heads the Learning and Developmental Disability Demonstration Clinic. He is an assistant clinical professor of pediatrics at Yale University School of Medicine.

Father Paris Addresses the Hartford County Medical Association

Father John J. Paris, S.J., M.A., Ph.D., Ph.L., professor of social ethics at Holy Cross College, clinical professor of community health at Tufts Medical School, and adjunct professor of medicine at the University of Massachussetts Medical School, explored the question, "Can we justify the cost of medical care for the dying?" at the Hartford County Medical Association's 195th Semiannual Meeting on September 30 at the Marriott Hotel in Farmington.

Father Paris serves on the board of directors of the American Society of Law & Medicine and on the U.S. Congress Office of Technology Assessment Advisory Panel on "Issues on Technology & Aging." He has also been a consultant to the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research.

He has published extensively on the subject of medical, legal and moral ehtics as they relate to the dying patient in such publications as the *New England Journal of Medicine, the Journal of the American Medical Association*, and *Law, Medicine and Health Care.*

CONTINUING EDUCATION PROGRAMS

Recent Advances in Pediatrics for the Pracitioner,
Harkness Auditorium,
Yale University School of Medicine
Wednesday, December 9, 1987
Sponsored by Yale University School of Medicine,
Department of Pediatrics,
Hezekiah Beardsley Chapter, American Academy of Pediatrics,
University of Connecticut School of Medicine,
Department of Pediatrics
Program Coordinator, John M. Leventhal, M.D. and
Jonelle Rowe, M.D.

CARAFATE®
(sucralfate)

BRIEF SUMMARY

CONTRAINDICATIONS
There are no known contraindications to the use of sucralfate.

PRECAUTIONS
Duodenal ulcer is a chronic, recurrent disease. While short-term treatment with sucralfate can result in complete healing of the ulcer, a successful course of treatment with sucralfate should not be expected to alter the post-healing frequency or severity of duodenal ulceration.

Drug Interactions: Animal studies have shown that the simultaneous administration of CARAFATE with tetracycline, phenytoin, or cimetidine will result in a statistically significant reduction in the bioavailability of these agents. This interaction appears to be nonsystemic in origin, presumably resulting from these agents being bound by CARAFATE in the gastrointestinal tract. The bioavailability of these agents may be restored simply by separating the administration of these agents from that of CARAFATE by two hours. The clinical significance of these animal studies is yet to be defined.

Carcinogenesis, Mutagenesis, Impairment of Fertility: No evidence of drug-related tumorigenicity was found in chronic oral toxicity studies of 24 months' duration conducted in mice and rats at doses up to 1 gm/kg (12 times the human dose). A reproduction study in rats at doses up to 38 times the human dose did not reveal any indication of fertility impairment. Mutagenicity studies have not been conducted.

Pregnancy: Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS
Adverse reactions to sucralfate in clinical trials were minor and only rarely led to discontinuation of the drug. In studies involving over 2,500 patients, adverse effects were reported in 121 (4.7%). Constipation was the most frequent complaint (2.2%). Other adverse effects, reported in no more than one of every 350 patients, were diarrhea, nausea, gastric discomfort, indigestion, dry mouth, rash, pruritus, back pain, dizziness, sleepiness, and vertigo.

DOSAGE AND ADMINISTRATION
The recommended adult oral dosage for duodenal ulcer is 1 gm four times a day on an empty stomach.

Antacids may be prescribed as needed for relief of pain but should not be taken within one-half hour before or after sucralfate.

While healing with sucralfate may occur during the first week or two, treatment should be continued for 4 to 8 weeks unless healing has been demonstrated by x-ray or endoscopic examination.

HOW SUPPLIED
CARAFATE (sucralfate) 1-gm pink tablets are supplied in bottles of 100 and in Unit Dose Identification Paks of 100. The tablets are embossed with MARION/1712. Issued 3/84

References:
1. Grossman MI: *Scand J Gastroenterol* 58 (suppl 15):7-16, 1980.
2. Marks IN, in Hellemans J, Vantrappen G (eds): *Gastrointestinal Tract Disorders in the Elderly.* Edinburgh, Churchill Livingstone, 70-81, 1984.
3. Krentz K, Jablonowski H, in Hellemans J, Vantrappen G (eds): *Gastrointestinal Tract Disorders in the Elderly.* Edinburgh, Churchill Livingstone, 62-69, 1984.

Another patient benefit product from
PHARMACEUTICAL DIVISION
MARION
LABORATORIES, INC.
KANSAS CITY MO 64137

1595H7

Editorials

Annual Physical Examinations for Women

It has become obvious that the public has been given a mixed message as to the need and importance of the so called "annual physical examination." In past policy statements, the AMA has stated that "for otherwise healthy persons, examination every three years would seem to be satisfactory." To compound this confusion further, the American Cancer Society has recommended that if a patient has two negative Papanicolaou smear examinations, she could then skip the third year examination. Other remarks on the basis of age and need for Papanicolaou smears has also been further confusing to the public. The following discussion relates to the importance and to the indications and needs for an annual physical examination for female patients. The need for such examinations annually may be considered under three separate headings: 1) general physical status as determined by clinical (and possibly laboratory) means; 2) the matter of adolescent pregnancy and related problems; 3) the problem of sexually transmitted diseases and their relationship to cervical neoplasia.

In the matter of the annual physical examination for otherwise healthy women, the case cannot be too strongly made. Even in the face of completely normal objective clinical findings, this may be the occasion in which the so-called "healthy life style" could be reinforced by the physician. In an era when nutritional excesses, such as bulemia, are seen regularly, the sports-minded asthenic person with amenorrheic problems, the compulsive eater with fad diet problems, these alone deserve attention by physicians caring for female patients. Fortunately, the AMA has recently emphasized the fact that the future of any country depends upon healthy teenagers becoming healthy adults. The importance of the contribution to society by healthy members all through life can easily be measured (especially in contrast to our less fortunate members of the third world nations). Breast self-examination always needs emphasis. At a recent meeting, the AMA devoted a large portion of its activities toward adolescent health care; attention of the readers is respectfully directed to this effort.

While we are patting ourselves on the back as to our generally good health status, the problem of teenage pregnancy gives us nothing to rejoice over. Statistics from other developed nations (such as the Scandinavian countries and Great Britain) show a much smaller number of their teenagers with unwanted pregnancy problems. Many studies have been done showing the advantages of openness in sexual education which is given the major credit for avoiding this problem, now so rampant in the United States. If a few statistics are needed to confirm these facts, it is interesting to note that about 12 million of the 29 million adolescents over age 12 are sexually active. The average age of first intercourse is less than 15 years. An estimated two thirds of sexually active teenagers do not routinely use birth control. More than one million teenage girls become pregnant each year and nearly half of all the births to unmarried women are to teenaged mothers. The rate among white teenagers, although lower than that among black girls, is still increasing. Recent studies done through a clinic in New Haven indicate that repeated pregnancy in teenagers who have already had an earlier pregnancy terminated is alarming. Teen mothers, who raise their children as single parents, have a greater likelihood of living in poverty; they have had to discontinue school as well as other social and culturally related relationships. Teenage mothers and their babies are often in a high risk obstetrical group. Children of such mothers have brain problems more often, and more often they become teen parents themselves. We all know of the great degree of misinformation among teenagers concerning pregnancy. Fortunately, many of the restrictions on sex instruction have been withdrawn and sex education has probably begun to help but not enough! Some have ascribed this increasing incidence of teenage pregnancy to be related to "feelings of invincibility on the part of teenagers." Others have felt that it was a hostility move directed toward their parents by presenting them with this problem. It would seem that most of the time, it is simply a matter of bad information and a lack of fear of the previously strong social stigma against unmarried pregnancy. It may well be that the doctor could establish rapport with such teenage patients so that they might be more willing to discuss their sexual and personal problems. In another area, the matter of the high suicide rate among teenagers might be addressed in part by "talking out" their problems with their physician.

An annual physical examination would at least provide the opportunity to learn and to be advised as to the possibilities of sexually transmitted disease problems. The Papanicolaou smear itself may give clues as to the existence of *Chlamydia* infection, gonorrhea, herpes, and other vaginitis problems. Without such examinations, the ability to head off herpes at earlier stages may not be possible. Since *Chlamydia* infection and gonorrhea have been related to problems of fertility as well as complications

---

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

of pregnancy, it would seem worthwhile to continue with annual examinations on this basis alone. It is hard to say what the proper role of AIDS testing is at this time. Some protocol should certainly be worked out in this regard.

In a third and most important area, the matter of cervical dysplasia and related human papilloma virus (HPV) problems could not be identified except by the annual physical examination with Papanicolaou smear and pelvic examination. The close relationship of perineal condylomata and koilocytotic atypia on Papanicolaou smears has been well known. HPV 16 or 18 may progress to malignant change. Dr. Syrjanen, from the Department of Oral Pathology, University of Dentistry in Kuopio, Finland, found the expression of papilloma virus capsis antigens to be very low (17%) in HPV lesions generally compared to 50-67% in lesions due to HPV 6, 11, and 18 lesions "suggesting a nonproductive transforming infection of HPV probably conditioned by the integration in the host cell genome of this HPV type." This is still another area which can be determined only by regular Papanicolaou smear examinations. At this time, the American College of Obstetricians and Gynecologists is developing new guidelines emphasizing the importance of dysplasia determination on the basis of cervical cytology. Colposcopic examination, and appropriate cervical neoplasia treatment following such examination, has usually been effective in eradicating progression of such problems. Recent resolutions have been submitted by the AMA House of Delegates to the Board of Trustees for study leading to a full report on this matter. This should be forthcoming in the next six months with advice for the timing of such regular annual examinations. This will undoubtedly modify the previous position on the frequency of annual health examinations (including Papanicolaou smears) in females. We all look forward to this change of policy and to this report.

Stewart J. Petrie, M.D.

Derby, CT

The Joint Commission Looks to the Future

Since early in this century, the medical profession has provided firm leadership in promoting high-quality patient care in the nation's hospitals. During the past two decades, this effort has steadily spread to involve a wide spectrum of organized health care settings. In this issue of *Connecticut Medicine*, Roberts and colleagues[1] describe the historical evolution of the Joint Commission on Accreditation of Hospitals and its role in effecting this professional mandate.

While the achievements of the Joint Commission are noteworthy, there is little basis for self-satisfaction in the current health care climate. In today's altered environment for patient care, resource limitation, changing and sometimes perverse reimbursement incentives, the professional liability crisis, and increased competition for patients have led to the elevation of quality of care to the status of a major public policy issue in this country. Public and professional concerns about the potential adverse impacts of these forces on quality of care have been equally intense, but the net effect is the creation of a demand for greater public accountability of hospitals, physicians, and others involved in providing health services.

The Joint Commission, as the traditional standard-setter for quality of care, clearly has a potential role in helping physicians and health care organizations meet their public accountability needs. But the historical approach of establishing structure and function standards, which only determine a capability for providing high-quality patient care, will no longer suffice. There is now a need to determine whether that capability was effectively acted out. Indeed, did the patient benefit or perhaps suffer from the provision of services or the lack thereof?

Joint Commission surveys have, for years, demonstrated that there is insufficient physician and organizational engagement in the process of evaluating quality of care and in acting to resolve identified problems. Meanwhile, standards language has become increasingly complex and is sometimes obscure—barriers not readily surmounted even with strong professional motivation. But physician motivation and organizational priorities for quality assurance activities are demonstrably less than they should be. Both the clarity of performance expectations and the professional commitment to meet these expectations require our collective attention.

In September 1985, the Joint Commission Board of Commissioners decided to embark on a broad set of initiatives to address a complex and evolving array of quality of care issues. The centerpiece efforts embodied in these initiatives are twofold. The first contemplates the incorporation of severity-adjusted clinical performance measures into the established quality assurance methodology. This developmental effort will eventually lead to the creation of a substantially greater clinical emphasis in Joint Commission monitoring activities. The second initiative is directed to a thorough reevaluation of the basic approach to evaluating organizational performance. The board also set forth an intent to diversify and expand substantially the Joint Commission's educational efforts to promote better understanding of standards compliance requirements. Significant progress has already been made in meeting this latter commitment.

The so-called clinical indicator initiative has stimulated considerable discussion and some anxiety within the health care field. But the fact is that recent descriptions of effective methodologic approaches and the development of new computer technology now make it possible to measure meaningful parameters of clinical performance. Further, the increasing availability of commercial quality assurance software packages offers the opportunity for broad applications in the nation's hospitals. As a profession, we are unaccustomed to admitting that we know how to measure quality of care, but that mind-set must change. Clinical performance is but one of many dimensions of quality of care; however, it does lend itself to measurement, and the keen national interest in this dimension of care is undeniable.

The incorporation of clinical performance measures into quality assurance activities is not as profound a change as it may seem. The quality assurance standard set forth by the Joint Commission at the end of the last decade requires health care organizations to identify problems in a systematic fashion, to analyze these problems, to take appropriate actions, and to demonstrate that the actions taken were effective in resolving the problems. There is no intention to alter this standard. At the same time, it is clear that the quality assurance standard has fallen well short of its expected impact. Perhaps it is only human nature that constantly directs our attention away from areas of potential sensitivity; but we no longer have the luxury of appeasing our human frailties.

The principal value of effectively monitoring clinical performance lies in the inherent capacity of such activities to focus the medical and administrative leadership of a health care organization on the major quality of care issues that they face. It must be emphasized that the numerical representations obtained through monitoring activities (eg, mortality and complication rates) are not definitive measures of quality. At best, outlier measures identify *potential* problems—problems that must be pursued through appropriate analysis, peer review, and corrective action. These are the meaningful products of the quality of care evaluation process.

The science and indeed the art of medical practice require the clinician to be skilled in pattern-and-trend analysis and to assess and act on various probabilities at the level of the individual patient. The clinical literature is a resource replete with this kind of information to guide the practicing physician. Today, programs that monitor the clinical performance of individuals, departments, and organizations are becoming another rich resource in evaluating patterns, trends, and probabilities. This information is particularly valuable because it is directly applicable to the setting in which the physician practices.

As the Joint Commission enters the developmental phase of its project to incorporate clinical performance monitoring into the accreditation process, we are mindful of certain sensitive issues. First, the performance parameters selected must be the right measures—those most likely to yield meaningful information—and the volume of measures must be limited to ensure that the data produced are manageable and can be effectively used in the quality assurance process. Furthermore, recognizing the wide variability in patient complexity across the hospitals we accredit, we place high priority on identifying a mechanism to adjust performance data for patient variables. In a real sense, the application of an equitable case complexity adjustment process is a fundamental system credibility issue.

Clearly, effective patient care does not always lead to optimal outcomes for patients. In the end, medical science has finite limitations. At the same time, practitioner competency limitations and internal systems problems do cause clinicians and health care organizations to fall short of meeting professional quality of care expectations. Developing a better approach to monitoring clinical performance offers the Joint Commission and other concerned parties the opportunity to prompt attention to those clinical problems that existing knowledge tells us could and should be better controlled.

There is today an increasingly urgent need for clinicians and health care organizations to heighten their awareness of the quality of services provided to patients. Indeed, there must develop an instinctive interest in finding and solving patient care problems. No one provides care at a level of perfection; thus, all of us can always improve on what we are doing.

The professional responsibility and burden for improving quality assurance methods are apparent. The Joint Commission's revised methodology will be no better than the quality of the professional effort that goes into its development. Broad and active professional involvement is, in our view, essential. It is also clear that the new approach will emphasize the importance of effective peer review to a degree far greater than in the past. This approach will provide a powerful tool in support of peer review activities, but the profession must rise to meet its obvious responsibilities.

The potential application of performance measures in quality assurance activities is certainly not a new idea, but it is an idea whose time seems to have arrived. Since the announcement of the Joint Commission initiatives last September, we have been struck by the broad support of physicians and hospitals for this new direction.

The reasons for this support are not mysterious. Except perhaps for a small minority, those involved in providing services to patients do want to offer the best care possible. Furthermore, there is no lack of sensitivity to the cost constraints in our environment. But the profession has learned that greater efficiency does not necessarily equate with higher quality of care. The validity of the reverse relationship, however, is being acknowledged: improved quality of care in the long run is more efficient and cheaper.

Finally, if the Joint Commission and the profession are unhappy with the methods used by others to evaluate clinical performance, then we should create a better method and encourage its broad use. Quality of patient care is, after all, our collective issue. It is time for us to reassert our leadership.

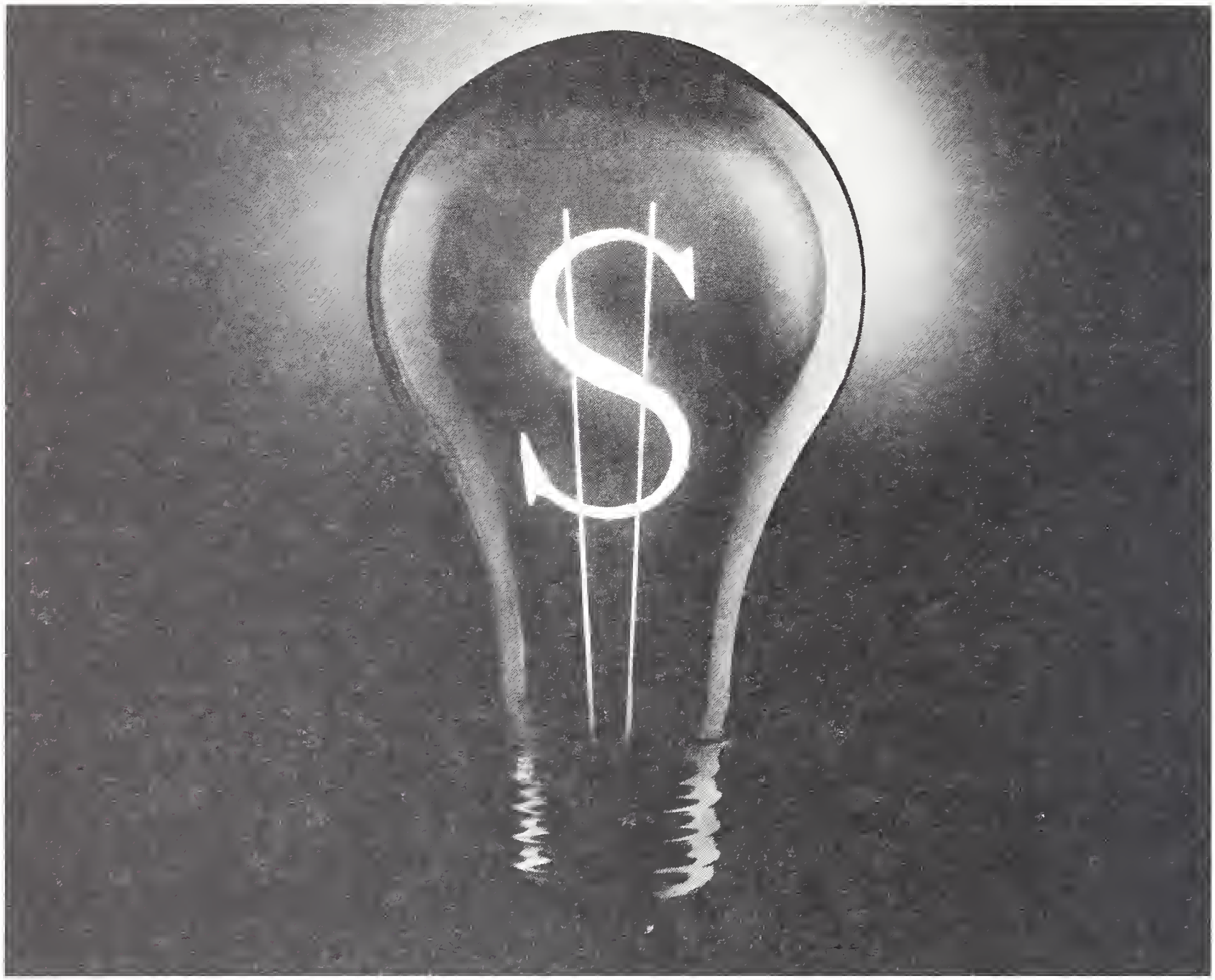
Dennis S. O'Leary, M.D.

President, Joint Commission
on Accreditation of Hospitals,
Chicago

REFERENCE

1. Roberts JS, Coale JG, Redman RR: A history of the Joint Commission on Accreditation of Hospitals. *JAMA* 1987:258:936-940.

Reprinted with permission of Dr. O'Leary and *JAMA*, Vol 258, No 7.



CNA's enlightened idea for malpractice insurance: financial stability.

CNA's financial stability provides the security you need in an insurer. CNA will be able next year, and in the years after that, to honor the commitments it has made because CNA has the resources to adequately finance your professional liability coverage.

Standard & Poor's rates CNA's ability to pay its insurance claims at AAA, the highest rating. A.M. Best & Company, an independent rating source, also gives CNA its highest rating, A+. Financial stability is one reason that CNA has been able to provide professionals with quality malpractice protection for over 30 years.

As the 13th largest insurance organization, CNA offers you even more than financial stability. CNA's programs include comprehensive coverages, local claim service, legal defense, results oriented loss control assistance, as well as expert underwriting.

It's your professional reputation and your practice. Protect them with a company that has the financial stability you can depend on. Contact:

A.A.W. Physicians Plan, Inc.
225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The CNA Physicians Protection Program is underwritten by Continental Casualty Company, one of the CNA Insurance Companies.

CNA
For All the Commitments You Make®

The President's Page

Unity

"Every day, in every way, things get better and better," so the saying goes – or does it? It seems not to be so for the medical profession; we are under attack. One reads of banker-congressman Fortney H. "Pete" Stark (D. Calif) blaming the proposed rise in Medicare premiums on medical doctors and saying that the doctors seem to have a key to the U.S. Treasury. One remembers the hearings last spring in Hartford when physicians were called "crooks" by the organized seniors lobbying for the passage of the bill restricting licensure of physicians to those who would accept Medicare as payment in full.

Because of medicine's success in caring for the sick, the frail, and the elderly, because of its success in just one decade of extending the life-span of the average American male from 68 to 72 years and reducing the death rate from heart attacks in that decade by 25%, Washington is upset at the nation's medical doctors. Its actuarial tables for Medicare recipients have been upset, and it is causing a furor down there. The bottom line is not turning out to be what it was supposed to be. All those Americans out there who have benefited from their physician's good care are living too long for Washington. Medicare will have to spend more money to take care of more aging Americans as they live longer. Social Security will have to pay out more than they calculated. Who to blame? Aha! – the Doctors. Blame them. Pick on them. Portray them as raiders of the treasury, as crooks. But don't let them be portrayed as advocates for their patients.

Don't tell the public that 6.9 million Americans are working in health services – 8.1% of all nonfarm jobs. Don't tell them that hospitals and private health agencies have added more than *one million workers* in five years! Don't tell them that health services constitute the country's third largest private employer – manufacturing is first, retailing is second. Don't tell them that of the total of 17 million workers on Federal, state, and local government payrolls, many have health-care jobs in public hospitals and other agencies, that health-care jobs are reported to have largely replaced unskilled manufacturing work as the main entry-level opportunity for workers in many large cities, or that nearly half the health jobs involve hospital payrolls. Yes, don't tell them all that. Tell them that physicians make too much money. That's a sure way to get the public to go along with reducing physicians' income and to think that doing so will balance the budget and bring back their reduced and denied Medicare benefits.

Then there is the attack by the Health Care Finance Administration (HCFA) in its proposal to set up two categories of physician reimbursement, one for those who accept Medicare as payment in full, the other for those who take the option, allowed in the original Medicare law and sustained in 1984, not to. Its purpose is to divide the profession by giving the former more money for services, while the latter are penalized by being allowed less money for the same services and made to seem to be anti-Medicare, anti-cost containment.

Another avenue of attack on the medical profession was sanctioned by the Congress when they made it mandatory that HMOs must be included in the options for health care that companies must offer their employees. This avenue has been pursued by "Wall Street" for the profits to be realized by taking 20%, more or less, from hospitals' and physicians' revenues and distributing that to stockholders as dividends – all in the name of reducing health-care costs.

In Connecticut, you, and your Society, saw that avenue of attack being exploited by the entrance of an ever-increasing number of HMO companies, such as Community Health Plan, Connecticare, Constitutional Health Network, Health Care, Kaiser Foundation Health Plan, Physician Health Services, Yale Health Plan, and CIGNA Health Plan representing Staff, IPA, and Group Models of delivery. At least five more were seeking to gain entrance to the Connecticut market when your Society set up the CSMS Ad Hoc IPA-HMO Committee to investigate the possibility of the Society blunting that avenue by implementing its own statewide, physician-owned, physician-directed, for-profit, IPA-type Health Maintenance Organization (HMO). That Committee determined that it was feasible and referred its findings to the House of Delegates.

A tense meeting of the CSMS House of Delegates heard the venting of frustrations over the inexorable pressures being placed upon physicians by outside forces. The role of "the doctor" as an independent practitioner of medicine seemed to be doomed to historical perspective. We heard about the march of events in our neighboring state of Massachusetts, about the huge oncoming entry into the medical-care delivery field by the large insurance companies, such as Prudential, Aetna, Travelers, Equitable, etc. The ever more difficult to understand cost-control oriented national conscience was to be tended by the foxes! Finally, after considerable discussion, the Speaker of the House raised the question whether we, as a Society, wanted to look at the option of establishing our own Health Maintenance Organization in Connecticut.

The answer was a resounding "Yes, let's try!"

Today, 18 months later, an innovative HMO-IPA, owned only by the physicians of our state in conjunction with your State Medical Society, is now licensed and operative. Your enthusiastic response to the IPA was indicative of your concern for your profession. Over 2,500 physicians joined.

However, many of you seemed to have lost your enthusiasm when it came to joining the M.D. Health Plan, *your* HMO. Only about 1,600 of you met the subscription challenge. It is realized that many of you had other financial obligations in the form of tuitions, taxes, and other ever-rising expenses at the time. Those obligations take on an increasing importance, especially as cost-cutting forces are resulting in increasingly reduced revenues for you. It is also realized that many of you are under the increasing influence of disinformation being disseminated by those forces whose attack would be threatened by your uniting with your brethren, not only for your best interest but for medicine's. It reminds me of those similar forces who tried to undermine your CSMS sponsored Connecticut Medical Insurance Company using similar approaches. CMIC prevailed, with unity. M.D. Health Plan will also prevail, with unity.

Recognizing that M.D. Health Plan has been beleaguered by criticism as it wades through unchartered waters, it is hoped that the rest of the doctors out there still remember:

- the anger in being designated both as "resources" and "expenditures" in the game of making money for other HMOs.
- the frustration of providing services and care for patients of those HMOs, accepting legal responsibility for them, yet being asked to abide by the rules and regulation of others who make them without your input.
- the feeling of hopelessness as the vise of bureaucratic controls and the restriction of corporate missions squeezes and presses incessantly.
- the pain of being pushed to the wall and the fear of the unknown in our own future.

Your colleagues, the physicians who were chosen and directed by *your* County Medical Associations, along with *your* State Medical Society leaders, united and accepted the challenge to form your HMO-IPA—and WE STILL REMEMBER.

We ask you out there—you who are waiting to join us now—to make this effort at unity happen. Your support, added to that of the 1,600 physicians who have already supported the "Let's try!" vote of the House of Delegates, will either make our efforts a proud reality, or make them a "What could have been." Please subscribe now if you haven't already.

There may be no second chance. If and when the commercially controlled HMOs gain dominance over you who did not join the forces of unity in the ranks, there will be no second chance. There will be no response to your "Why didn't we do something?" or "How did it get this bad?" complaints when your fees are reduced unilaterally as those HMOs bottom lines do not meet their projections. You will be blamed for their deficits just as the Government is blaming you for its deficit.

For those of you who fear that M.D. Health Plan's efforts are inadequate or its direction is not aimed properly, join our ranks. Remember, some of CMIC's most ardent early stone-casters have become its most ardent supporters. You can effect changes from within.

Put your shoulders next to ours, and together, united, the physicians of Connecticut will go on the attack and succeed not only in making their HMO a success, but in exposing their detractors. Together we will succeed in restoring to the physician-patient relationship the primacy of "the Doctor" as the provider of the best, most efficient, highest-quality medical care, while continuing to be the patient's best advocate. Maybe we shall see where "Every day, in every way, things get better and better."

James P. Orphanos, M.D.
President

(Special thanks to Vincent J. Catrini, M.D., for his contribution to the subject matter expressed above.—J.P.O.)

Reflections on Medicine

History, Hot and Cold

ROBERT U. MASSEY, M.D.

Physician historians jump at the chance to make converts. Every invitation to speak is seized upon as an opportunity to proselytize, to persuade a few more that history is no mere listing of dates and names, but rather that it is a long story of which the present is only the most recent chapter. Not to know what or who came before is like trying to make sense of a novel which we have just opened in the middle, or even more like trying to act in a play, being made to read lines beginning somewhere in the second act.

Some high school students, so we have heard, do not know whether the Civil War came in the first or second half of the 19th century; most medical students, even those from Connecticut, have never heard the name of William Beaumont. A colleague told me that during a recent visit to Vienna, he searched the Allgemeines Krankenhaus and found Semmelweis's First Obstetrical Clinic. He had known about where in that sprawling building to look, and had confirmed the location by finding a plaque on the wall. Some medical students and house officers working nearby had apparently never noticed it; they could not recall having heard of Semmelweis.

The students should not be blamed; it is our responsibility to pass on to them the traditions and the stories of our past. That has always been the duty, as well as the delightful privelege, of the elders in every tribe, to assure the continuity of cultural memory, providing some solid reality to the illusory present. Trying to describe human consciousness may get us caught up in tautologies at worst, and in metaphysics at best; certain it is, however, that without memory there could be no consciousness as we understand it. If we were immediately to forget each present moment when it had passed, we should be automatons; the briefer the memory the more constricted the awareness.

Historical memory must in some way be analogous to individual memory; as it declines, a community, institution, profession, nation, or the entire human race must suffer from a shrinking awareness, a narrowing of consciousness, a decline of wisdom. We store the traces of our past in libraries; traditions, art, and architecture have also carried the record of earlier centuries, but now we are losing our traditions, and buildings are replaced every generation or so. The modern library serves scholars better than ever; in fact, our enhanced ability to store and handle information in non-bibliographic ways has revolutionized the study of history. All the while the diffusion of historical knowledge seems to have declined. Historians write mostly for one another; that kind of exchange among scholars is essential for getting things right, but it hardly adds to historical memory if our students never hear of it.

For history must be told as a story, at least at first: a story that begins in the imaginable past and comes right down to the experienced present. *History* and *story* derive from the same word; in German they are the same word, *Geschichte.* I once heard an historian give a paper, "Some like it hot, some like it cold: two ways for writing history." For students whose business is other than history, it is better hot. The cold "facts" can come later, if the interest is there, and it will be if the tale is well told in the first place. And after the cold facts, the real business of history may get going; the scholar in history tries to come behind the facts, looking for the truth, very much like good novelists and playwrights, who, reversing the order, start with the truth in their heads and present it in the action, the "facts" of the story.

Education, wrote Alfred North Whitehead, must begin with romance, "the half-disclosed and half-hidden possibilities relating Crusoe and the sand and the footprint, and the lonely island secluded from Europe. . . ." To turn students into good amateur historians requires telling a good story with "half-disclosed and half-hidden possibilities," and counting on bright heads to take it from there. For a fortunate few it will be a new road to wisdom—another word, incidentally, which shares by a twisted path a common Indo-European root with *history.*

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

REFERENCE

1. White AN. *The Aims of Education and Other Essays.* New York, The MacMillan Company. 1929, pp 28-29.

While you take care of patients, who takes care of you?

Connecticut physicians rely on us for comprehensive insurance and financial services.

- Professional liability coverage
- Business owners protection
- Personal life, auto, and homeowners insurance
- Financial planning
- Complete brokerage services

The Watson Group - professionals serving professionals.

the
WATSON
GROUP

Arthur A. Watson & Company, Inc.
Financial Action Plans, Inc.
Watson Financial Services Corporation
AAW Physician Plans, Inc.

225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

Confidentiality and AIDS II

JOSEPH M. HEALEY, J.D.

In general, physicians owe their patients an ethical and legal duty to treat as confidential information obtained in the doctor-patient relationship. This duty is deeply rooted in the Hippocratic tradition in medicine and affirms core values within the doctor-patient relationship. Nonetheless, it is important to recognize that the duty has not been viewed as absolute. Under appropriate circumstances, it may be outweighed by competing responsibilities to others. For example, in a series of cases beginning with the *Tarasoff* decision in California, several courts around the country have recognized a duty by mental health professionals to take reasonable steps to protect potential victims of conduct by their patients.[1] Among the strategies available to provide such protection is the disclosure of information which ordinarily would be treated as confidential to those at risk. In considering the responsibilities of physicians in the context of AIDS, several basic questions must be addressed. Should the principles established in *Tarasoff* and subsequent cases be applied in the AIDS context to justify or require disclosure of HIV status to the sexual contacts of those who refuse to disclose their seropositivity voluntarily? If so, how can such duties be carried out?

There are several strong arguments against permitting or requiring such disclosures. The issues raised by AIDS are not entirely the same as those raised by mental illness.[2] Not all seropositive patients pose the same degree of risk to third parties. Not all seropositive patients may be infectious. Not all who are seropositive develop AIDS. The facts of individual cases vary to such a degree that evaluating the risk of danger to others is complicated. Disclosure of seropositivity may have severe adverse consequences for the patient. Discrimination in housing, education and employment, social isolation, and even physical harm may be the consequences of disclosure to third parties. Finally, the prospect of disclosure of such sensitive information is likely to undermine trust essential to the doctor-patient relationship and perhaps deter patients from seeking needed care. One commentator has advanced arguments against disclosures to third parties by pointing out:

> "Thus by being known to maintain a very strict level of confidentiality the medical profession has a better chance of maintaining the trust of high risk groups; it will therefore be better able to influence them and more effectively promote the health of others in general."[3]

Many of the objections have been raised in the context of the mental health cases without success. The widespread acceptance of the principles originally established in the *Tarasoff* case suggests that if a case such as the one I described in last month's column were presented to a court, it is likely that the judge would acknowledge the *Tarasoff* principles as governing and would look for a fair and appropriate way to apply them. In fact, the *Tarasoff* case contains a reference to a series of prior cases recognizing the duty of the doctor to warn members of the patient's family after a diagnosis of a contagious disease has been made.[4] Faced with the likelihood that a duty to protect would be held to outweigh a duty to maintain confidentiality, how can physicians assure that guidelines are employed which are as fair as possible to all parties? I believe the answer rests in part in an accurate understanding of what is required by the *Tarasoff* line of cases and in part in the appropriate use of the informed consent process. These issues will be discussed in next month's column.

REFERENCES

1. For discussion of these cases, see Mills MJ, Sullivan G, Eth S: Protecting third parties: a decade after *Tarasoff. Am J Psychiatry* 144(1):68-74.
2. For a discussion of these issues, see Winston M and Landesman SH: Case Studies—AIDS and a duty to protect. *Hastings Cent Rep* 17(1):22-23.
3. Gillon R: AIDS and medical confidentiality. *Br Med J* 294:1676.
4. *Tarasoff v The Regents of the University of California* 1976;551 P 2d 334, 344.

JOSEPH M. HEALEY, J.D., Associate Professor, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

CSMS Members:

Let's Talk About A New Concept In Health Care.

Century 2000.

Century 2000. A Preferred Provider Program in which more than 4,000 health care providers in this state are now participating.

Century 2000. Providing quality with an emphasis on preventive care.

Century 2000. Reducing costs by encouraging members to use its managed care network of Preferred Providers.

Century 2000. For information on how you can become a Preferred Provider call 1-800-922-1742 extension 5137.

**Blue Cross
Blue Shield**
of Connecticut

Letters to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgment), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1½ pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent *Journal* article should be received within six weeks of the article's publication.

PHILOSOPHIC CHALLENGES

To the Editor: I found Volume 51, #7 of *Connecticut Medicine,* the July issue, very challenging in philosophic areas. Dr. Uwe E. Reinhardt's article on "Health Insurance for the Nation's Poor" began to jog my concern. I have spent part of the summer reading Professor Alan Bloom's *The Closing of the American Mind,* and Professor Reinhardt recalled some of the concepts in Bloom's book. What Dr. Reinhardt does is very subtly propose a very fair program to put a safety net under the poor, and to admit publicly that their care will be unequal. I must also add "unequal," but of "very high quality."

What I do not like is Reinhardt's concept of "hidden taxes" and his support for a system where the dishonesty of the funding is overt. After criticizing the pseudo-taxes, he concludes by stating that such a system is going to be part of our health care system for the poor, and the other part will be some sort of a national program. He proposes one where there would be a contribution made through your income tax form 1040, and this would be used to support the care of the poor. I personally do not like being lectured on nationhood and the lack of it in the United States of America. The concept of nationhood has devastated the western world repeatedly for the past seven or eight hundred years, since the nations of Europe began to truly take identity as opposed to the multiple political and social entities that had preceded them. We forget that nations like Germany and Italy unified only relatively recently. The concept of nationhood was initially weak in this country and one of the problems is that it may be getting too strong and the national government being relied upon too much as a result.

Whatever the disagreements with Dr. Reinhardt on the fact that we are not enough concerned on a national level, the conclusion that I reached from his article is one that Dr. Bloom makes in his book, namely, that we do not really try to develop acceptable concepts for delivering health care.

It is clear to me from the recent Congressional hearings that there is at least a serious question as to the ability of the Congress and the Senate of this country to oversee covert operations and keep them covert at the same time. I do not trust Congress to properly deal with the health care problems of this nation because the base from which they make their decisions is too often the next election.

The president's page in this issue should be read by everybody. Dr. James Orphanos, in a somewhat lengthy but very complete and skillfully constructed exposition, summarizes several years of intense effort and struggle to reform the tort system in the state of Connecticut and of its partial undoing the year after reform was achieved. There is no way that in this era of prospective pricing, there is going to be room for infinite escalation of malpractice premiums and unlimited decisions by juries in personal liability cases in the pain and suffering portion of the awards. Once again, we do not develop a conceptual framework, instead operating on a crisis by crisis basis. In this particular situation, both Medicine and Law believe they are operating, not only in their self-interest, but in the interest of their patients and/or clients. To an extent, this is true, but to an extent, this is also false.

The last item in this journal was a letter to the editor from Dr. Timothy Magee. Dr. Magee writes about addiction and his concept is that the addict who cannot reform is a sick person. I agree with this but do not like the distance to which he drew his conclusion, ie, that the addict has no responsibility and must be treated as a sick person because he is unable to help himself. If Dr. Magee thinks that this is so true, then the addict should lose his right to vote, be incarcerated since he cannot be held responsible for many of his actions, and therefore is a danger to society. Obviously, this is not an acceptable position to most of us physicians, and we would disagree if it were implemented. Therefore, we believe that addicts *do* have a free will and *can* be held responsible for their actions. The questions are to what degree do they have free will and how much responsibility can they be held to. No one really comes to terms with these questions, not even when there has been an attempt to assassinate the president of the United States. The American Psychiatric Association and the AMA were supposed to reach a conclusion concerning insanity as a defense but there has been conspicuous silence on the final result of the joint task force.

Once again, I think the editors of the *Journal* should be complimented on this issue.

Jerome K. Freedman, M.D.
New Haven, CT

NOTICE TO CONTRIBUTORS

Members of the Connecticut State Medical Society reading papers before other organizations are requested to submit their papers to the JOURNAL for consideration by the Board of Editors for publication. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult INFORMATION FOR AUTHORS. This material may be obtained from the *Journal* office. Adherence to the instructions will prevent delays both in acceptance and in publication.

Please send them to:

Robert U. Massey, M.D., Editor
Connecticut Medicine
160 St. Ronan Street
New Haven, Connecticut 06511
(203) 865-0587

INTERNIST
or FAMILY PRACTITIONER
or E.R. PHYSICIAN

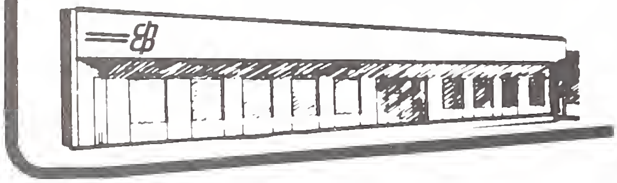
Community Health Care Plan a prepaid, staff model HMO is in its fifteenth year of service with over 65,000 members. Our *Long Wharf* facility, which is affiliated with Yale New Haven Hospital, needs a board eligible/certified Internist, experienced Family Practitioner or an Emergency Room Physician with extensive background to work in the Urgent Visit Department. Excellent compensation package and attractive setting next to Long Island Sound. Submit C.V. and salary requirements to: Chief of Medicine.

CHCP
150 Sargent Drive
New Haven, CT 06511

We are an equal opportunity employer M/F

Community Health Care Plan

Affiliated with Blue Cross & Blue Shield of Connecticut



NEW YORK FERTILITY RESEARCH FOUNDATION, INC.

For the Investigation of Problems of Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

"SELLING PRACTICES IS OUR BUSINESS"

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping hundreds of doctors like yourself buy and sell their practices. We guide you through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666   (617) 232-1075   (212) 686-7902

U.S. Postal Service

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
Required by 39 U.S.C. 3685)

1A. TITLE OF PUBLICATION Connecticut Medicine	Journal of the Connecticut State Medical Society	1B. PUBLICATION NO. 1 2 9 3 6 0	2. DATE OF FILING October 1, 1987
3. FREQUENCY OF ISSUE monthly		3A. NO. OF ISSUES PUBLISHED ANNUALLY twelve	3B. ANNUAL SUBSCRIPTION PRICE $15.00

4 COMPLETE MAILING ADDRESS OF KNOWN OFFICE OF PUBLICATION *(Street, City, County, State and ZIP+4 Code) (Not printers)*
160 St. Ronan Street, New Haven, CT 06511

5 COMPLETE MAILING ADDRESS OF THE HEADQUARTERS OF GENERAL BUSINESS OFFICES OF THE PUBLISHER *(Not printer)*
160 St. Ronan Street, New Haven, CT 06511

6 FULL NAMES AND COMPLETE MAILING ADDRESS OF PUBLISHER, EDITOR, AND MANAGING EDITOR *(This item MUST NOT be blank)*

PUBLISHER *(Name and Complete Mailing Address)*
Connecticut Medicine, 160 St. Ronan Street, New Haven, CT 06511

EDITOR *(Name and Complete Mailing Address)*
Robert U. Massey, M.D., 160 St. Ronan Street, New Haven, CT 06511

MANAGING EDITOR *(Name and Complete Mailing Address)*
Vivian C. Feriola, Assistant to the Editor, 160 St. Ronan Street, New Haven, CT 06511

7 OWNER *(If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (Item must be completed.)*

FULL NAME	COMPLETE MAILING ADDRESS
Connecticut State Medical Society	160 St. Ronan Street
(non-profit organization)	New Haven, CT 06511

8 KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES *(If there are none, so state)*

FULL NAME	COMPLETE MAILING ADDRESS
none	

9 FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES *(Section 423.12 DMM only)*
The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes *(Check one)*

☒ (1) HAS NOT CHANGED DURING PRECEDING 12 MONTHS
☐ (2) HAS CHANGED DURING PRECEDING 12 MONTHS
(If changed, publisher must submit explanation of change with this statement.)

10 EXTENT AND NATURE OF CIRCULATION *(See instructions on reverse side)*	AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NO. COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE
A. TOTAL NO. COPIES *(Net Press Run)*	5,979	6,010
B PAID AND/OR REQUESTED CIRCULATION 1 Sales through dealers and carriers, street vendors and counter sales	------	------
2 Mail Subscription *(Paid and/or requested)*	260 5,560	266 5,588
C TOTAL PAID AND/OR REQUESTED CIRCULATION *(Sum of 10B1 and 10B2)*	5,820	5,854
D FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES	90	97
E. TOTAL DISTRIBUTION *(Sum of C and D)*	5,910	5,951
F. COPIES NOT DISTRIBUTED 1. Office use, left over, unaccounted, spoiled after printing	69	59
2. Return from News Agents	------	------
G. TOTAL *(Sum of E, F1 and 2—should equal net press run shown in A)*	5,979	6,010

11. I certify that the statements made by me above are correct and complete	SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER (Signature) Robert U. Massey, M. D., Editor

PS Form 3526, Dec. 1985   *(See instruction on reverse)*

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

EMERGENCY MEDICINE

Park City Hospital in Bridgeport, CT is seeking full-time Emergency Medicine physician. Twenty-six thousand E.R. visits with Industrial Medical Center in E.R. Active Paramedic Program. Certification in ACLS and experience in Emergency Medicine required. First year compensation $96,000 with attractive benefit package. Send current CV to: Don Rankin, M.D., Emergency Department, Park City Hospital, 695 Park Ave., Bridgeport, CT 06604 or call (203) 579-5040.

Connecticut—Full-time position for Chief of Emergency Services at a greater Hartford area community hospital. Candidate should be board eligible or certified in Emergency Medicine. Competitive salary with a full benefit package. Send CV to Bradley Memorial Hospital, Personnel Department, 81 Meriden Ave., Southington, CT 06489.

INSTITUTIONAL MEDICINE

Chief of Medicine. JCAH-Accredited 350-bed State Veterans Hospital seeks physician to serve as Chief of Medicine. Supervisory experience and Connecticut licensure required. Excellent working conditions and benefits package; competitive salary. Contact Ms. Sharon Wood, Hospital Administrator, Veterans Home and Hospital, 287 West St., Rocky Hill, CT 06067. 529-2571, ext. 2281. EOE.

INTERNAL MEDICINE

Immediate opening to join practicing internist. Full or part time. Rapidly growing area. Please send C.V. to Rozann Venti, M.D., 269 Church St., Hebron, CT 06231.

Gastroenterologist to join well-established two physician Internal Medicine Group in Central CT. Large practice in Adult Medical Primary and Subspeciality Care. Expertise in all GI procedures essential. Liberal salary and benefits with progression to partnership. Send C.V. to, Harold P. Kaplan, M.D., Internal Medicine Associates, P.C., 116 Cook Ave., Meriden, CT 06450.

Major U.S. corporation, location southern Connecticut, seeks BC internist with interest career in occupational medicine. One year fellowship or residency cardiology necessary. Please reply to CSMS, c/o IM/SD.

Expanding Pulmonary/ICU practice in central CT seeks partner. Private office and hospital-based Pulmonary Rehab./Chronic Ventilator Program. Must be able to perform procedures required for Pulmonary/ICU practice. Beautiful area close to N.Y. and Boston. Please send C.V. to Dr. Joseph A. Harrison, 2150 Corbin Ave., New Britain, CT 06053-2263.

G.P./F.P./Internist for established center in southeastern, CT. Call Kathy Williams at (203) 443-4255.

MISCELLANEOUS

Very attractive physician's office available to share or sublet in downtown Westport. Popular medical location. Free patient parking. Call 454-3933.

OTOLARYNGOLOGY

Active practice, general E.N.T. in Northwestern CT needs associate. Excellent location in growing area. Well-equipped office. Needs CT license and board certification. Call 489-0897 or send resume to CSMS, c/o OTO/TO.

PEDIATRICS

B/C B/E Pediatrician to join four Physician General Pediatric practice in coastal Southeastern CT. Please send C.V. to CSMS, c/o PED/BE.

BC/BE pediatrician needed to join busy two physician partnership. Shoreline community close to major medical center. Partners actively involved in teaching. Excellent salary leading to partnership. Please send C.V. to Howard D. Fink, M.D., 75 New Haven Avenue, Milford, CT 06460.

Busy private group practice seeking fifth pediatrician (BE or BC) with neonatology experience. Also responsible for pediatric inpatients, level II nursery and supervision of house staff. Some teaching responsibilities. 250 patient visits/week at three sites. Reply with C.V. to H. Hadley, Pedicorp, P.C., 80 South Main St., West Hartford, CT 06107.

Part time position (evening and weekend hours) available for a pediatrician in a walk-in night-time pediatric clinic in Stratford. No call. No hospital care. Ideal for a pediatrician who is also a parent and wishes to spend days at home. Please send resume and references to P.O. Box 572, Shelton, Connecticut 06484.

PSYCHIATRY

Norwich Hospital. A 600-bed State psychiatric treatment facility is accepting applications for anticipated vacancies in acute, geriatric and rehabilitation divisions. Benefits include a comprehensive medical package, paid leave time, retirement plan and possible housing on grounds. Connecticut license required. Contact: Office of Assistant Superintendent, Clinical, Norwich Hopsital, P.O. Box 508, Norwich, CT 06360. (203) 823-5264. AA/EOE.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

ANESTHESIOLOGY

Immediately available. Age 44. Presently in practice. MD, University of Tehran, Tehran, Iran; Int., New Rochelle Hospital Medical Center, New Rochelle, NY; Res., The Johns Hopkins Hospital, Baltimore MD; Fellowship, University of Maryland, Baltimore, MD. Available to any type practice. Write, Mahin Mehdizadeh, M.D., 1616 Imperial Ridge, Las Cruces, NM 88001.

FAMILY PRACTICE

July '88. Age 34. Presently in practice. Nat'l bds. AB cert. DO, Chicago College of Osteopathic Medicine, Chicago, IL; Int., USAF Medical Center, Scott AFB, IL; Res., David Grant USAF Medical Center, Travis AFB, CA. Prefers group, assoc. or institutional type practice in a medium to large-sized community. Write, Paul E. Bauer, D.O., PSC Box 3406, APO, NY 09057.

GENERAL SURGERY

Immediately available. Age 39. Presently in practice. FLEX. AB cert. MD, Cincinnati College of Medicine, Cincinnati, OH; Int., University of Connecticut, Farmington, CT; Res., Northeastern Ohio affiliates. Prefers group (multi-specialty or single specialty) in a medium to large-sized community. Write, Robert A. Cecchino, M.D., 2705 River Rd., Virginia Beach, VA 23454.

INTERNAL MEDICINE

Jan. '88. Age 29. Licensed in Connecticut. FLEX. AB elig. MD, Autonomous University of Guadalajara; Int., Stony Brook School of Medicine, NY; Res., Norwalk Hospital/Yale University School of Medicine; Fellowship, North Shore University Hospital/Cornell School of Medicine, New York, NY. Prefers solo, group or associate type practice. Write, M.T. James, M.D., c/o F. Sammarco, Apt. 4F, Bldg. 1, 40 Prospect Ave., Norwalk, CT 06850.

May '88. Age 41. Nat'l bds. AB elig. MD, University of Illinois, Chicago; Int. and Res., University of Chicago, Chicago. Prefers solo, group, associate or institutional type practice. Write, Leilani L. Nixon, M.D., 1175 Gail Drive, Buffalo Grove, IL 60089.

Sept. '88. Age 27. FLEX. MD., Georgetown University, Washington, DC; Int. and Res., University of Massachusetts Medical Center, Worcester. Prefers group, associate or institutional type practice. Write, CSMS, c/o DM/IM.

July '88. Age 37. Presently in practice. Nat'l bds. AB cert. MD, Kansas City College of Osteopathic Medicine, Kansas City, MO; Int., Michigan Osteopathic Medical Center, East Lansing, MI; Res., Walter Reed Army Medical Center, Washington, DC. Prefers group, associate or solo type practice. Write, Peter Kuzmick, D.O., 62 Diamond Ave., Fot Rucker, AL 36362.

July '88. Age 29. Nat'l bds. AB elig. MD, University of Connecticut, Farmington, CT; Int. and Res., University Hospital, Boston, MA. Prefers group type practice. Write, Russell H. Gerry, M.D., 56 Concord Ave., #46, Cambridge, MA 02138.

Sept. '87. Age 29. Licensed in Connecticut. Nat'l bds. AB cert. MD, SUNY Upstate Medical Center, NY. Int. and Res., Medical College of Wisconsin, Milwaukee, WI. Prefers associate or institutional type practice. Write, Gerard J. Murphy, M.D., 7 Church Street, Rocky Hill, CT 06067.

PATHOLOGY

July '88. Age 30. Nat'l bds. AB cert. MD, Ohio State University College of Medicine, Columbus, OH; Int. and Res., University of Cincinnati College of Medicine, Cincinnati, OH; Fellowship, University of Nebraska College of Medicine, Omaha, NB (Hematopathology); University of Cincinnati College of Medicine, (Surgical Pathology). Prefers group or insititutional type practice preferably in a large community hospital or academic institution. Write, John F. Vago, M.D., 9224B Hunters Creek Drive, Cincinnati, OH 45242.

PEDIATRICS

Pediatrician. BE/BC. University trained, needed to join solo Pediatrician in semi-rural Western Connecticut. Please call (203) 355-4113.

RADIOLOGY

General radiologist with training in all phases of diagnosic and invasive radiology is being recruited by a six-man group of radiologists in Northeastern Connecticut. Practice includes three offices and a small progressive hospital. The hospital currently offers a full range of services including nuclear medicine, ultrasound and CT unit, new one-day surgical center recently completed, also regional dialysis center and busy outpatient department. Part-time may be considered for this position. Send C.V. to Jonathan Berger, M.D., 142 Echo Drive, Vernon, CT 06066.

UROLOGY

July '88. Age 40. FLEX. AB elig. MD, Universidad Central del Este; Int., Presbyterian University of Pennsylvania Medical Center, Philadelphia, PA; Res., Wilmington Medical Center, Wilmington, DL (Surgery); St. Vincent Health Center-Hamot Medical Center, Erie, PA (Urology). Interested in general adult and pediatric urology and endourology. Prefers group or associate type practice in a medium to large-sized community. Write, Charles Dorfman, M.D., 3313 Amherst Rd., Erie, PA 16506.

Immediately available. Age 55. Presently in practice. AB elig. MD, University of Tehran, Tehran, Iran; Int., New Rochelle Hospital Medical Center, New Rochelle, NY; Res., Johns Hopkins Hospital, Baltimore, MD (Urology). Available for any type practice. Write, Ayoub Mehdizadeh, M.D., 1616 Imperial Ridge, Las Cruces, NM 88001.

PAID CLASSIFIED ADVERTISING

BETHANY, CT NEEDS DOCTORS! Open a new Emergency Care Center Medical Office as soon as possible. Only 12 miles to Yale-New Haven; St. Raphael's; 10 miles to Waterbury Hospital. A new building is going up now in an established area. Lease with option to purchase. Contact: Gary Merritt, KATZ REALTY, INC., 1-800-843-3097.

GROWING NORTHEASTERN CONNECTICUT HOSPITAL with free-standing surgery center, nursing home and in the process of major additions to multiple clinical areas including psychiatry and ICU is looking for and willing to support physicians in the following specialty areas: Family Practice, Internal Medicine, Orthopedics and Oncology. Please contact: Herbert J. DiMeola, M.D., Vice President, Medical Affairs, Johnson Memorial Hospital, (203) 684-4251, ext. 207.

FOR SALE: Complete X-ray unit, suitable for family practice. Picker mobile unit, automatic film x-ray processor, view-boxes, chest-stand, lead screen, film-bin, cassettes with standard screens. Unit registered. $3,500 or best offer. Call 259-8291.

LARGE DOCTOR'S OFFICE FOR LEASE. Excellent location on busline in Windsor Center. Includes seven treatment rooms, three consultation offices and much more. After hour appointments only. Call Wm. R. Smith Realty, Inc. 688-4911 or 688-7392.

FOR SALE: One Hamilton examining table; mint condition; $650. Two wall-mounted Baumanometers; $35 each. Call evenings 673-7989 or write to: Dr. N.A. Freeman, Box 464, Avon, CT 06001.

FOUNDED IN 1792

Connecticut Medicine

Vol. 51, No. 12 *The Journal of the Connecticut State Medical Society* December 1987
160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587

CSMS OFFICERS

James P. Orphanos, M.D. Greenwich
President
Norman A. Zlotsky, M.D., Rockville
President-Elect
Roger S. Beck, M.D., Wethersfield
Vice-President
Annemarie S. Welch, M.D., New Britain
Secretary
Robert R. McDonnell, M.D., New Haven
Treasurer
Lawrence B. Ahrens, M.D., Newington
Speaker of the House of Delegates
Mehdi S. Eslami, M.D., Waterbury
Vice-Speaker of the House of Delegates

AMA DELEGATES

Edward A. Kamens, M.D., Fairfield
  Joseph C. Czarsty, M.D., Oakville, *Alternate*
Guy W. Van Syckle, M.D., Danbury,
Chairman of the Council
  William A. Whalen, Jr., M.D., Willimantic, *Alternate*
Frank K. Abbot, M.D., Hartford
  Jerome K. Freedman, M.D., New Haven, *Alternate*
Stewart J. Petrie, M.D., Derby
  Joseph S. Sadowski, M.D., Hartford, *Alternate*

COUNCILORS

Robert P. Ragusa, M.D., Stratford
Fairfield County
Howard J. Wetstone, M.D., Hartford
Hartford County
George H. Rubin, M.D., Torrington
Litchfield County
Kenneth Robbins, M.D., Middletown
Middlesex County
Geroge A. Bonner, M.D., Guilford
New Haven County
Jerome Bobruff, M.D., New London
New London County
Gerald L. Schwartz, M.D., Rockville
Tolland County
Kenneth R. Dardick, M.D., Storrs
Windham County

ASSOCIATE COUNCILORS

Turpin H. Rose, M.D., Danbury
Fairfield County
John J. Sullivan, Jr., M.D., Stamford
Fairfield County
John J. O'Brien, M.D., Hartford
Hartford County
Robert M. Chmieleski, Bristol
Hartford County
W. Peter Reyelt, Jr., M.D., Sharon
Litchfield County
Juan Sosa, M.D., Middletown
Middlesex County
Theodore Zanker, M.D., New Haven
New Haven County
Marvin Fox, M.D., Milford
New Haven County
Sultan Ahamed, M.D., Norwich
New London County
Arturo D.P. Villa, M.D., Somers
Tolland County
Stephen M. Upham, M.D., Danielson
Windham County

COUNCILOR AT LARGE

Joseph C. Czarsty, M.D., Oakville

Editor	Robert U. Massey, M.D.
Literary Editor	Sherwin B. Nuland, M.D.
Editor Emeritus	J. Alfred Fabro, M.D.
Managing Editor	Vivian C. Feriola
Assistant Managing Editor	Valerie A. Redman
Editorial Assistant	Janet Massey

Editorial Board

Pediatrics	Michael D. Bailie, M.D.
Family Practice	Dewees H. Brown, M.D.
Cardiology and Internal Medicine	Martin Duke, M.D.
Psychiatry	Stephen Fleck, M.D.
Dermatology	Robert D. Greenberg, M.D.
Nephrology and Internal Medicine	William A. Handelman, M.D.
Infectious Diseases and Internal Medicine	David P. Johnson, M.D.
General Surgery	Kirk K. Kazarian, M.D.
Pathology and Hemotology	Ramon N. Kranwinkel, M.D.
Pathology	John L. Meyer, M.D.
Diagnostic Radiology	M.B. Ozonoff, M.D.
Obstetrics and Gynecology	Stewart J. Petrie, M.D.
Neurosurgery	Melville P. Roberts, M.D.
Cardiology	Michael A. Rossi, M.D.
Internal Medicine and Rheumatology	Robert T. Schoen, M.D.

CSMS Staff

Executive Director	Timothy B. Norbeck
Associate Executive Director	Josephine P. Lindquist
Director of Scientific Activities	Robert J. Brunell
Director of Public Affairs	Raymond T. Sullivan
Director of Government Relations	Cameron C. Staples
Coordinator Medical Courtesy Card	Margaret K. Connelly
Membership Department	Dorothy M. Stratton
Placement Service	Valerie A. Redman
Management Information Systems	Deborah P. Maynes
Accountant	Marc A. Sullivan
Secretary	Patricia Sullivan

Bacteriuria in Multiple Sclerosis: Documentation by Prospective Cultures

GLEE I. WAHLQUIST, R.N., PH.D. AND JOHN BOOSS, M.D.

ABSTRACT–Recurrent urinary tract infection is one of the most disabling complications of multiple sclerosis (MS). Little effort has been made to document prospectively the longitudinal patterns of bacteriuria in patients at risk for febrile urinary tract infection. We undertook a pilot study in nine patients with chronic MS, eight of whom had previously experienced urinary tract infections, and four of whom were on long term antibacterial suppression. Weekly samples collected at home were mailed to the hospital in special containers with bacterial growth media. Sampling ranged from 12 to 36 weeks. Several episodes of bacteriuria were detected and treated prior to the development of fever. In addition, the shifting pattern of bacterial colonization of patients taken off antibacterial suppression was documented. We conclude that the technique of prospective culturing from the home merits further study in selected patients.

Urinary bladder dysfunction is a major cause of disability in chronic multiple sclerosis (MS).[1] In a previous review of our patients with chronic MS we found that 73% had urological dysfunction.[2] Further, we found that febrile urinary tract infection was the most frequent cause of hospitalization of this group. The most severe complication, urosepsis, is life threatening.[3] Since this population presents symptoms of irritative and/or obstructive bladder dysfunction, urodynamic studies are required to plan appropriate bladder management. Various types of therapies have been proposed to reduce infection, including chronic antibacterial suppression. However in the absence of symptomatology little attention has been paid to the patterns of bateriuria in patients at risk for recurrent urinary tract infection. We now report the findings in a pilot study of nine MS patients with documented urodynamic dysfunction who underwent serial bacteriologic evaluation. All but one had a previous history of febrile lower urinary tract infection, and four were on chronic antibacterial suppression therapy on entrance into the study. We used a technique in which urine samples can be collected by the patient or care giver in the home.[4] The results indicate that longitudinal documentation of urine infection is feasable and that it is useful in certain clinical situations.

Subjects and Methods

Subjects

The patients in our clinic are predominantly male, averaging about 50 years of age, and have had a duration of disease from diagnosis of approximately 12 years.[2] The most frequent disability was motor-sensory dysfunction of the lower extremities in 96%, followed by urologic dysfunction in 73%. A subsequent urologic survey revealed that 88% of the respondents noted irritative bladder symptoms, 64% noted symptoms of retention, and 60% had both irritative and retentive symptoms. For the present studies, nine patients were chosen from the clinic population of over 60 patients for intensive monitoring of bacteriuria. These nine included all patients who had had a febrile urinary tract infection in the preceding year and one who had recently started on anticholinergic medication (patient #6). All were male and as shown in Table 1 the ages ranged from 38 to 66 years, disease duration ranged from five to 34 years, and all but one patient were significantly disabled. The PULSUS profile scale for neurologic disability was used.[5] Scores range from six (least impaired) to 24 (most impaired) with scores over 12 representing significant disability. All but one were on regimens of urinary drainage by periodic straight catheterization. At the start of the study, four patients were managed with prophylactic antibiotic suppression (Table 1).

Urine Monitoring

Weekly sampling of urine for bacteriuria was initiated. Patients or their care givers collected the first catheterized or first voided (patient #6) specimen each Monday. A slide, coated with two different nutrient media, was dipped into the urine sample, and excess urine drained off. The slide was inserted into a sterile tube, sealed, placed in a double protected mailing tube, and mailed. The urine culturing, Uricult® (Medical Technologies Corporation, Somerset, NJ), has been previously validated by others[4] and employed by us in other studies.[6] Specimens were

---

GLEE I. WAHLQUIST, R.N., PH.D., Professor and Chairperson Department of Nursing, Sacred Heart University, Bridgeport, CT; Nurse Practitioner, Multiple Sclerosis Clinic, VA Medical Center, West Haven, CT. JOHN BOOSS, M.D., Associate Professor Departments of Neurology and Laboratory Medicine, Yale University School of Medicine, New Haven, CT; Attending Neurologist, Multiple Sclerosis Clinic, VA Medical Center.

Reprint requests to: Neurology Service, VA Medical Center, West Haven, CT 06516 (Dr. Booss).

received by MS clinic personnel and incubated at 37°C for 24 hours. Specimens containing greater than 10^5 organisms were transferred to the microbiology laboratory for species identification and sensitivity testing. Patients were contacted with regard to the presence of symptoms at the time of positive cultures. Decisions concerning treatment were made individually on consideration of bacterial and clinical data in consultation with members of the urology service. Criteria for therapy were not part of this study.

Results

Characterization of Patients Studied

Urodynamic studies in each of the nine patients studied demonstrated patterns of neurogenic bladder dysfunction. These patterns include those of an uninhibited bladder, an areflexic bladder, and detrusor-sphincter dyssynergia. Intravenous pyelograms demonstrated all upper tracts to be within normal limits initially, although one patient (#3 Table 1) later developed evidence of two non-obstructive renal calculi. As demonstrated in Table 2, all but one of the patients had had previous episodes of febrile urinary tract infection. Seven of the nine had had several episodes, and in the year prior to study, four had been hospitalized for the problem.

Table 1
PATIENT CHARACTERISTICS

Patient	*Age*	*Disease Duration*[1]	*Disability Score*[2]	*Management Method*	*Antibiotic Suppression*[4]
1	53	14	16	St. cath.[3] weekly for monitoring	No
2	54	12	21	St. cath. daily	Yes, discontinued
3	46	22	21	St. cath. daily	Yes, discontinued
4	53	5	11	St. cath. BID	Yes, discontinued
5	38	9	12	St. cath. QID	No
6	56	13	13	Anticholinergic medication	No
7	57	14	14	St. cath. BID	No
8	66	15	15	St. cath. QID	No
9	60	34	16	St. cath. QID	Yes, discontinued

1. Duration in years from diagnosis
2. PULSUS profile range 6-24, 6 is total independence, over 12 is severely disabled (Reference #5)
3. St. cath.=Straight catheterization
4. Trimethoprim (160mg) combined with sulfamethoxazol (800mg)

Table 2
RESULTS OF PROSPECTIVE CULTURING AND CLINICAL MANAGEMENT

Patient	*History of Febrile UTI*	*Febrile UTI Hospitalizations*[A] *Preceding Year*	*Findings on Prospective Culturing*[B]	*Febrile UTI During Year of Study*
1	Several	None	Two episodes of asymptomatic bacteriuria treated.(18)	None
2	Several	Three	On suppression colonized with Pseudomonas Aeroginosa. Off suppression colonized with *E. coli*.(14)	None
3	Several	Two-Both for urosepsis	On supression colonized with Pseudomonas Aeruginosa. Off suppression colonized with *E. coli*.(22)	None
4	Several	None	On suppression colonized with Pseudomonas Aeruginosa. Off suppression intermittent *E. coli* colonization.(19)	None
5	One	One	Three episodes of asymptomatic bacteriuria treated.(36)	None
6	None	None	No growth detected.(33)	None
7	Several	None	Two episodes of asymptomatic bacteriuria treated.(27)	None
8	Several	One	One episode of bacteriuria with dysuria treated.(12)	None
9	Several	One	On suppression, colonized with Providencia Stuarti. Off suppression colonized with *E. coli*.(13)	None. Patient expired of an unrelated condition during study period.

A. Hospitalizations resulting from or complicated by febrile urinary tract infection.

B. Number of weekly samples in parenthesis.

Results of Prospective Culturing

Specimens were collected and sent on a weekly basis for variable periods of time, depending on the time needed to establish a pattern. The briefest period studied was 12 weeks and the longest period was 36 weeks. Eight of the nine patients had at least one episode of bacterial growth. Four of the eight persons were receiving trimethoprimsulfamethoxazole as prophylaxis against febrile urinary tract infection. All four of these persons subsequently developed organism resistance within one to four weeks after data collection was begun. In three persons the medication was discontinued. These participants were asymptomatic, and no further therapy was initiated although weekly monitoring was continued. In the fourth patient prophylaxis was changed to nitrofurantoin. Within ten days resistance to this mediation also developed and it was subsequently discontinued. All four persons then developed asymptomatic *E. coli* bacteriuria sensitive to the usual antimicrobials. Of the four patients not on suppression who developed bacteriuria, only one had dysuria, and none were febrile. Each was treated with appropriate antimicrobials. In contrast to the preceding year, no patient developed febrile urinary tract infection in the year following the initiation of the study. One of the patients (#9) expired during the year of the study of an unrelated condition. The data are retained because of the information they contribute concerning chronic antibacterial suppression. The relationships between straight catheterization and colonization were not studied.

Discussion

This pilot study suggests that serial prospective culturing of urine facilitates urologic management in MS. The patterns demonstrated were persistent colonization, intermittant episodes of bacteriuria, or no growth. In contrast to the previous experience in these patients, no episodes of febrile urinary tract infection occurred in the year following the start of the study. Eight of the patients had had previous histories of febrile urinary infections, and four had been hospitalized in the preceding year. These data on urinary microbial patterns in patients with MS-related bladder dysfunction complement the results of urodynamic studies. Thus Blaivas and Barbalias have emphasized the need for urodynamic definition to manage detrussor-external sphincter dysynergia in multiple sclerosis.[3] In general, one can say that the more thoroughly defined are the microbial and urodynamic patterns, the more likely that the management of urologic dysfunction in MS will be successful.

This study has also demonstrated the feasibility of prospective sampling from the home in an at risk population of MS patients. No logistical difficulties were presented by the technique for the patients, their care givers, or health service workers, and the financial cost is minute when compared to the cost of treatment of a febrile UTI. Previous studies have demonstrated the reliability and usefulness of the technique.[4] The general principal emphasized by the study, prospective determination of microbial patterns, could also be accomplished by regular visits to the appropriate laboratory facilities. However, the convenience offered by the present method will be preferred by many patients, particularly those with marked impairment of ambulation. We agree with the comment of Blaivas and Barbalias[3] that urologic complications correlate with the severity of the MS so that the more handicapped patients are apt to find the dip slide mailing technique especially convenient.

Prevention of urinary tract infection is a crucial objective in management of these patients. Our findings suggest that chronic prophylactic antimicrobial suppression allows establishment of resistant organisms. Eight patients were on regimens of straight catherization. This technique has the advantage of encouraging a return to normal bladder function without carrying a significant risk of infection.[6] In the presence of acceptable technique, it remains to determine how to manage those patients who develop occasional episodes of lower urinary tract infection while on a regimen of straight catherization. The present studies suggest that serial prospective urine culturing merits further study to provide early detection and antimicrobial sensitivity in these patients. The technique also lends itself to monitoring the bacteriologic status of patients undergoing a change in their urologic management.

REFERENCES

1. Blaivas JG: Management of bladder dysfunction in multiple sclerosis. *Neurology 30* 1980;7(2):12-18.
2. Wahlquist GI, Booss J: Evaluation and management of patients with established multiple sclerosis. *Conn Med* 1982;46:313-314.
3. Blaivas JG, Barbalias GA: Detrussor external sphincter dyssynergia in men with multiple sclerosis: An ominous urologic condition. *J Urol* 1984;131:91-94.
4. Arneil GC, McAllister TA, Kay P: Detection of bacteriuria at room temperature. *Lancet* 1970;1:119-121.
5. Granger CV, Albrecht GL, Hamilton BB: Outcome of comprehensive medical rehabilitation: Measurement by PULSUS profile and the Barthel index. *Arch Phys Med Rehab* 1979;60:145-154.
6. Wahlquist GI, McGuire E, Greene W, Herlihy E: Intermittent catheterization and urinary tract infection. *Rehab Nursing*, Jan-Feb 1983;83:18-41.

Evaluation of a Rheumatology Teaching Program for Family Medicine Residents

MICHA ABELES, M.D. AND T. JOSEPH SHEEHAN, Ph.D.

ABSTRACT—A rheumatology teaching program in a family medicine (FM) clinic setting was instituted to instruct FM residents. Experimental group FM residents receiving rheumatology training demonstrated an improvement in performance, whereas none was noted in the FM resident control groups. The success of the program depended to a great extent on individualized teaching during patient encounters. Evaluation of the teaching program was successfully done by direct observation of resident/patient encounters and by a written essay/short answer test. Multiple-choice testing was a less effective way of evaluating competence or performance.

Surveys in England and the United States indicate that the prevalence of rheumatic diseases is between 6% and 10% of the adult population.[1-3] In 1977, the National Center for Health Statistics estimated 27 million people in the United States had arthritis, rheumatism, or gout, and an additional 10.6 million individuals had some other form of musculoskeletal disease.[3,4] Despite these impressive numbers, the National Commission on Arthritis and Related Musculoskeletal Diseases in its report to Congress in 1976 noted that rheumatologists treat only 3% of the patients with rheumatic diseases.[5] The remainder were being treated by primary care physicians, 70% of whom had no training in rheumatology. Although the American Rheumatism Association more than doubled its membership from 1975 through 1979, the Arthritis Plan of the National Commission on Arthritis had already recognized that ". . . even if the number of rheumatologists were doubled or tripled, these specialists would not provide care for all with arthritis, since most do not require specialized treatment. Care from appropriately trained primary physicians would be more readily available and probably less expensive."[5] Similar sentiment was voiced by an international workshop comprising members of the International League Against Rheumatism and the American Rheumatism Association, which emphasized the need for teaching rheumatology to the primary care physician.[6] Among the goals set by the Arthritis Plan of the National Commission on Rheumatology is that "every primary and family physician should know the criteria for early diagnosis of arthritis, techniques of treatment, and when to refer patients for specialized care."[5] In an attempt to address this need, there has been a proliferation of continuing medical education (CME) courses. Several studies have demonstrated that CME may not make a difference in improving physician performance.[7-9] Other studies showed that rheumatology training of house officers does lead to a prolonged improvement in performance.[10,11] This prompted us to establish a teaching program in rheumatology for family medicine (FM) residents.

Teaching rheumatology in an FM office setting was considered a potentially effective approach in meeting this problem: The spectrum of common rheumatic illnesses and problems most often confronting the FM physician would be seen; FM residents would follow their own patients during prolonged longitudinal care; and initiate referrals in an environment similar to that in which they would be practicing medicine in the future. The purpose of the program reflected the goals of the Arthritis Plan. Specifically, the program was established to develop skills for (1) recognition (proper history taking and physical examination), (2) treatment of certain selected common rheumatologic conditions, and (3) to develop an appropriate threshold for referral to a specialist.

Methods

Study Design

The University of Connecticut Family Medicine Program conducts its outpatient clinics in two separate locations. Residents are randomly assigned to either clinic. Although the FM faculty attends in both clinics, the physical separation of the two facilities makes a unified conference schedule unfeasible. Each clinic, therefore, sets up its own separate conference and meeting schedule. The residents attend one of the two clinics, two to three half days each week for the entire three years of their residency.

The study dealt with three distinct groups of FM residents. The experimental group consisted of FM residents who were taught rheumatology during direct patient encounters and by lectures and conferences. Control group I (CG I) consisted of residents attending the same

---

MICHA ABELES, M.D., Associate Professor of Medicine, Division of Rheumatology, University of Connecticut School of Medicine. T. JOSEPH SHEEHAN, Ph.D., Professor and Head Department of Research and Health Education, University of Connecticut School of Medicine, Farmington, CT.

Reprint requests to: Division of Rheumatic Disease, University of Connecticut School of Medicine, Farmington, CT 06032 (Dr. Abeles).

clinic, but having no direct patient teaching, only attending rheumatology lectures and conferences; control group II (CG II) was the second control group of FM residents located in a different facility who were not exposed to any aspect of the teaching program. The program covered an academic year and was repeated for three consecutive years with three consecutive classes of PGYIII FM residents.

All rheumatology lectures, conferences, and clinic supervision was carried out by one of us (M.A.) who also conducted the clinical evaluation. No previous rheumatologist had had any encounters with the residents. After 18 months in private practice following graduation, resident physicians were contacted for follow-up evaluations.

Education Program Design and Objectives

The educational format was followed for a year and consisted of twice-a-month lectures covering the history and physical examination of patients with rheumatic disease, normal and abnormal joint anatomy and physiology, laboratory evaluation of the patient with rheumatic disease, and lectures on specific rheumatic diseases. The experimental residents had direct one-on-one teaching at the time of patient encounters involving direct patient care. The majority of patients evaluated were those already followed by the resident or newly self-referred to the FM clinic with rheumatic complaints. Identification of these patients was done by the resident, by the nurse, and by chart review. Other patients deemed appropriate and who had no primary care physicians were referred from the Rheumatology Division.

Evaluation

Residents were evaluated by written tests that included multiple-choice, fill-in, and essay-type questions. Residents were also evaluated by direct observation of clinical encounters. The clinical encounter evaluation (CEE) was also used as a teaching tool. Both written tests and CEE attempted to measure data-gathering ability, diagnostic precision, therapeutic plans, and capability in follow-up, including referral threshold. The general guidelines used to assess clinical encounter performance were as follows:

1. Proper history, including:
    a. joint disease history (onset, the involved joints, presence of symmetry, and presence of swelling)
    b. morning stiffness
    c. functional history
    d. back pain
    e. rash
2. Physical examination (the general physical examination with special reference to evaluation of cutaneous involvement including the scalp, mucosa, skin, and nails)
3. Joint examination (evaluation for tenderness, warmth, effusions, and range of motion) and a soft-tissue examination where appropriate
4. A differential diagnosis
5. Appropriate diagnostic procedures
6. A proper approach to therapy

At the end of each clinical encounter, the observer graded the resident's performance using the following scale:

1. Excellent evaluation and therapeutic approach
2. History and physical examination good; therapeutic plan can be improved
3. Diagnosis is recognized but history and physical examination can be improved; therapeutic plan inadequate
4. Resident aware of patient's problem but unable to take a proper history, perform a proper physical examination, or reach the specific diagnosis
5. The history and physical examination were inadequate and the presence of a rheumatic disease was missed.

The evaluation was then discussed with the resident. A CEE was done for all new patient encounters and, at the end of each follow-up examination, for all subject residents. Residents of CG I were observed and evaluated for three weeks—one week each at the beginning, midway, and termination of the teaching year program. No teaching was done at the time of their observation. Residents of CG II were evaluated only by written test.

Prior to initiation of the teaching program, an evaluation by written testing was conducted. The pretests consisted of 29 multiple-choice questions, nine of which dealt explicitly with referral to a subspecialist. Pretests indicated no difference between subject and control groups. The postprogram test was divided into five subsections. The first four subsections introduced four common clinical situations. These questions required fill-in or short essay answers. The four topics included the evaluation of osteoarthritis (11 questions), monoarticular disease (13 questions), shoulder pain (11 questions), and finger pain ([eg, carpal tunnel] 13 questions). The fifth subsection consisted of 27 multiple-choice and matching questions on miscellaneous rheumatic disease problems. The questions on osteoarthritis were excluded from analysis, since all groups answered nearly all questions correctly.

Knowledge of when to refer to a subspecialist was an aim of teaching. General guidelines for referral were formulated by members of the Rheumatology Division and the Family Medicine Department. These guidelines were presented during the Introductory Lecture Series and at subsequent conferences. Reinforcement of these concepts was also done at the time of direct patient encounters. Guidelines suggested for referring to a subspecialist included: 1) uncertainty about diagnosis or therapy, 2) unsuccessful therapy, and 3) presence of or suspected systemic lupus erythematosus, dermatomyositis, polymyositis, vasculitis, rheumatoid arthritis not responsive to nonsteroidal anti-inflammatory drugs, and Felty's syndrome.

The 18-month postgraduation evaluation consisted of a written examination identical to the postprogram test. Evaluation of performance was not possible.

Statistical Analysis

Reliability was estimated from correlations of the scores on odd and even questions using the Spearman-Brown correction formula. Means for each group and standard deviations were calculated to compare groups using tests. A correlation matrix provided a basis for comparing measurement scales.

Results

Acceptable data for inclusion into the study were obtained in 15 residents in the experimental group, nine residents in CG I, and eight residents in CG II. Three subject residents and one CG II resident had taken a separate rheumatology elective during the course of this study, and three residents in the experimental group who had fewer than 15 CEE were excluded from evaluation. Ten of 15 subject group and five of 17 control group residents who were contacted participated in the 18-month follow-up study.

Clinical Encounters

In a total of 40% of all clinical encounters, the resident failed to deliver proper patient management. In 15% of these unacceptable encounters the resident was given the poorest rating possible (inability to recognize the presence of a rheumatic problem). This only occurred in initial visits. In the remaining 85% of unacceptable encounters, a rheumatic problem was recognized (eg, joint pain), but the physical examination and history were done inadequately and a proper differential diagnosis was not obtained. The majority (60%) of these ratings were also on initial patient visits. Two thirds of the unacceptable scores in the experimental group occurred in the initial three months of each teaching year. A trend of improvement in initial visits and follow-up patient encounter scores was observed over the year. Nevertheless, 10% of unacceptable ratings occurred in the final three months. An analysis of these encounters again showed them to have occurred in initial visits in which the problem posed by the patient was new to the resident. Only 3% of CEEs were rated as excellent with no further input needed, and these occurred at the end of the teaching year in follow-up patient visits. Most (89%) encounters considered good with little need for further input occurred after multiple follow-up examinations on a patient.

Forty-one aspirations/injections were done by 15 residents. These procedures were done because of the rheumatologist's suggestion and with guidance. In 35 instances, the resident had not considered this approach as part of the evaluation/therapy regimen. In five of these, a diagnosis of crystalline disease was made immediately on viewing crystals.

Observation of subject residents during clinical encounters also yielded some interesting impressions. The residents showing the greatest improvement in performance (by CEE score) were those who were precepted repeatedly during work with a single patient who was being followed over time. After one follow-up patient visit, 80% of subject residents improved their CEE by a numerical score of one, and 20% by a numerical score of two. After more than two follow-up visits, 75% of subject residents had an increase in numerical score of two or more. Some residents failed to extend their knowledge from one case situation in which they performed well to another patient with a similar condition. In a few residents, there appeared to be little correlation between performance under direct observation and total number of cases seen.

Written Tests

Test reliability for the posttest was estimated from correlations of the scores on odd and even questions with a median reliability of 0.81 based on Spearman-Brown corrected correlations. The pretest showed no difference between subject and control groups. Also, since no difference was found between the two control groups in both the pre- and posttests, they were combined for statistical analysis. Evaluation of cognitive (written) measures was done for each subsection of the posttest. Means and standard deviations are shown in Table 1. Results on monoarticular disease and shoulder pain were significantly better (P = .05) in the experimental group. The other two subscores did not differ significantly, but differences favored the experimental group.

Table 1

POSTTEST COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS

	*Monoarticular Disease**		*Shoulder**		*Carpal Tunnel*		*All Others*	
	Exp	*Con*	*Exp*	*Con*	*Exp*	*Con*	*Exp*	*Con*
N	15	17	–	–	–	–	–	–
Mean	8.77	7.14	7.62	5.43	9.23	8.71	20.46	18.57
SD	1.58	0.83	1.78	1.76	2.22	1.03	2.87	3.11

* P < = .05

Exp = experimental; Con = control; N = number of patients; SD = standard deviation.

New patient encounters (CEE I) and follow-up examinations (CEE II) correlated more highly with short answer than with multiple-choice questions (Table 2). This suggests that in our residents the knowledge required for actual performance was better measured by short answer or essay questions than by multiple-choice items. In general, the correlations show that those who performed most poorly on the examinations tended in general to be those whose clinical performance was worst under direct observation. The best performers on the examination tended to be the best performers in the clinical setting.

Knowledge of when to refer to a subspecialist was one of the aims of our teaching program. We, therefore, assessed the resident's threshold for referral with a series of questions in which referral was the correct response. Results indicate that threshold for referral was lower when referral was a mentioned option then when referral was

Table 2
CORRELATIONS AMONG SUBTESTS

	MC	*SA*	*CEE I*	*CEE II*
MC	1.0	0.38	0.46	0.56*
SA	0.38	1.0	0.59^{+}	0.80^{+}
CEE I	0.46	0.59^{+}	1.0	0.77*
CEE II	0.56*	0.80^{+}	.77^{+}	1.0

* $P < .05$
+ $P < .01$
+ $P < .001$

CEE I = clinical encounter evaluations of group I; CEE II = clinical encounter evaluations of group II; MC = multiple-choice answers; SA = short answers.

a fill-in answer. The subject group referred correctly more often on multiple-choice options than on fill-in questions. Members of CG II never referred when referral was a fill-in answer. There was no strong correlation between overall performance on examination and performance on these referral issues.

The 18-month follow-up evaluation indicated cognitive skill scores in both subject and control groups that were virtually unchanged. This was true with both essay/short answer questions as well as with multiple-choice questions. A breakdown of individual scores indicated that three individuals had significant score changes (two improved, one worse) and all others remained the same.

Discussion

The majority of physicians in primary care medicine have not had exposure to training in rheumatology. An attempt to correct this problem has and is being done by CME courses. However, studies in the past have cast doubts on whether CME serves its function.[7-9] Learning in the formative training years does not necessarily lead to improved performance either. For instance, Pinkerton and associates[12] have shown that lecture and conference on routine well-patient care procedures may not lead to change in physician prescribing practice unless individual feedback and continuous monitoring by faculty was maintained. Nevertheless, there is good evidence that resident physicians when taught over a period of time in a certain manner do learn, retain knowledge, and become more competent.[10,11] There is also evidence that when physicians have "hands on experience," when reinforcement occurs, and when the problems defined by the physicians themselves are the ones that are solved, performance is optimized.[13]

With many of the above factors in mind, the rheumatology family medicine program was initiated. Teaching was done by lecture and reinforced by subsequent lectures on the same topic but more importantly, by one-to-one teaching during actual patient visits. The presentation of knowledge was therefore, generalized, and, for the experimental group, also individualized. Individual instruction was more practical and immediate taking advantage of "the teachable moment."[14] Furthermore, application in terms of actual mechanics of physical examination could be observed and corrected.

That direct contact with the resident in a clinical situation was a key element in learning and in the application of the material learned was indicated by evaluation of procedures. Written tests showed that the experimental group residents did better than either control group. Residents of CG I and CG II did not differ in their test scores, suggesting that the lecture series over the course of a year did not lead to any gain in knowledge, or if it did, improvement was not substantial (since their knowledge was less than that of the experimental group).

Direct observation of the experimental group was done on a continual basis as part of the teaching program. Observations but not teaching of the members of CG I was done at the beginning, midway, and at end of the program. History taking and ability to do a good articular physical examination improved in the experimental group but did not change in the observed control group, with CEE scores remaining unchanged over the course of the study period. Although these observations were not controlled since they were done by the study rheumatologists, the apparent lack of improvement in motor skills and patient care in CG I does mirror the poorer test results of the group. In fact, the pattern of the correlations between performance measures and the written measures lends support to their validity as well, i.e., performance correlates best with performance, next best with essay, and worst with multiple choice.

Referral to specialists occurs for a number of reasons. These include the need for a second opinion, need for expertise in diagnosis or therapy, and help in overall management. Referral patterns of individual physicians vary;[15] no one factor accounts for all. In the present study, the question of referral was addressed. Criteria were established by the Department of Family Medicine in conjunction with the Division of Rheumatology. These criteria were taught and continually reinforced. Written examinations indicated that referral was done more often and more appropriately by the experimental group than by either control group. Members of CG II, who had no contact with the rheumatologist, never referred unless cued to do so by the wording of the question. It may be argued that the experimental group referred only because the test was administered by a familiar rheumatologist-teacher. Although this may play a role in the testing process, it is nevertheless disturbing to observe that (at least in a test format) the control group physicians rarely considered referring ill patients who required the expertise of a specialist. The reasons that CG II never referred unless cued may include the lack of recognition of the seriousness of a problem, lack of recognition of the problem, self-confidence in being able to evaluate the problem, or lack of awareness of when or why to refer. Lack of teaching of when referral to a specialist should be considered may also be important.

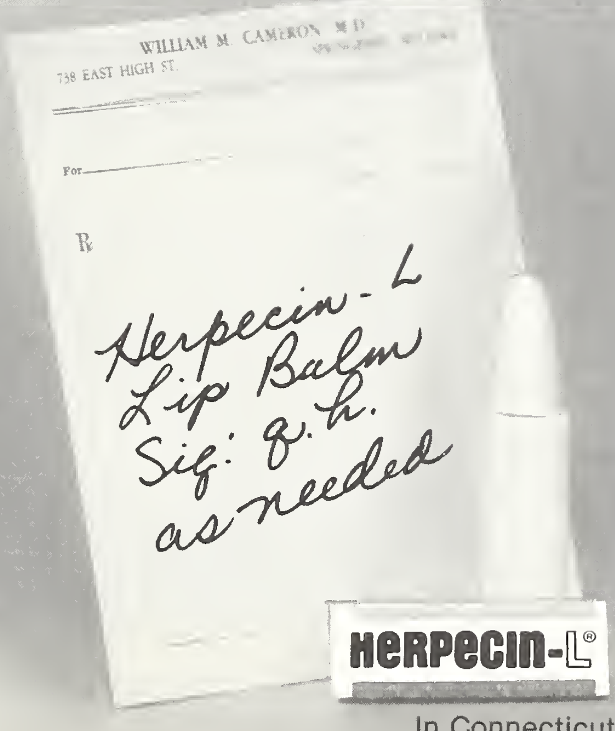
We noted that short answer or essay type of questions correlated best with clinical observations, and that multiple-choice questions were less discriminating. Although our clinical observations were not controlled this, nevertheless, is not a surprising finding. Essay questions require recall of knowledge without cueing. Essay questions also reflect common mistakes in a clinical judgment such as omission (omitting a critical abnormality in analysis), premature closure (conclusions not justified by data), inadequate synthesis (diagnosis missed despite adequate data), or wrong synthesis (data contradicts conclusions).[16]

It is extremely interesting to note that, on cognitive testing, improvement which occurred following a preceptorial program did not decay over an 18-month period. This indicates that retention of knowledge acquired over a prolonged period of time is maintained for time periods of at least one and a half years. In sharp contrast, no gains in knowledge were observed for either group once formal training ended. Recent studies by Meehan, et al, further underline the problems of rheumatology training of FM residents.[17] Their observations indicate no difference in knowledge of rheumatology between FM residents and medical students. In the face of such a striking observation, our findings strongly highlight the need and effectiveness of a preceptorial type rheumatology teaching program in a FM setting.

REFERENCES

1. Cobb S: *The Frequency of the Rheumatic Diseases.* Cambridge, Harvard University Press, 1971.
2. Lawrence JS: *Rheumatism in Populations.* London, William Heinemann Medical Books LTD, 1977.
3. *The National Health Survey,* Series 10, US Dept of Health, Education, and Welfare publication No 111, Government Printing Office, 1977.
4. National Arthritis Advisory Board *Annual Report* 1977, US Dept of Health, Education, and Welfare publication No (NIH) 78-318 Government Printing Office, 1978.
5. National Commission on Arthritis and Related Musculoskeletal Diseases: *Report to the Congress of the United States,* US Dept of Health, Education, and Welfare publication No 76-1150-27-1156, April 1976.
6. Rudd E, Lockshin M: Education in rheumatology for the primary care physician. *J Rheumatol* 1978;5:99-11.
7. Sibley J, Sackett D, Neufield V, et al: A randomized trial of continuing medical education. *New Engl J Med* 1982;306:511-515.
8. McGuire C, Hurley R, Babbott D, et al: Ausculatory skill: Gain and retention after intensive instruction. *J Med Educ* 1964;39:120-131.
9. Wilhelm I: Evaluation of behavioral change reported by participants in two types of post graduate programs. *Phys Ther* 1972;52:751-757.
10. Eyanson S, Brandt K: Effect of a rheumatology elective on house officers' evaluation of rheumatoid arthritis. *Arch Intern Med* 1980;140:1449-1452.
11. Eyanson S, Brandt K: Some effects on house officers of an elective rheumatology rotation. *J Rheumatol* 1980;7:251-257.
12. Pinkerton R, Tinanoff N, Willms J, et al: Resident physician performance in a continuing education format. *JAMA* 1980;244:2183-2185.
13. Miller G: Continuing education for what? *J Med Educ* 1963;42:320-326.
14. Stross J, Bole G: Evaluation of a continuing education program in rheumatoid arthritis. *Arthritis Rheum* 1980;23:846-849.
15. Metcalfe D, Sischy D: Patterns of referral from family practice. *NY State J Med* 1973;73:1690-1694.
16. Voytovich A, Rippey R, Copertino L: Scorable problem lists as measures of clinical judgment. *Evaluation and the Health Professions* 1980;3:159-170.
17. Meehan RF, Goldenberg DL, Allaire SH, Anderson JJ: Rheumatology knowledge and skills of trainees in internal medicine and family practice. *Arthritis Rheum* 35N (Abstract), 1987.

Dx: recurrent herpes labialis



Herpecin-L
Lip Balm
Sig: q.h.
as needed

"HERPECIN-L is my **treatment of choice** for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough."** DDS, MN

"HERPECIN-L®. . . a **conservative approach** with **low risk/high benefits."** MD, FL

"Used at **prodromal symptoms** . . . blisters **never formed** . . . remarkable." DH, MA

"(In clinical trials) **. . . response** was **dramatic. HERPECIN-L** . . proven **far superior."** DDS, PA

"All patients claimed **shorter duration** . . . at **prodromal symptoms** . . . HERPECIN-L **averted** the attacks." MD, AK

OTC. *See P.D.R.* for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Connecticut HERPECIN-L is available at all *Brooks, CVS RiteAid, Walgreens-MediMart* and other select pharmacies.

Important Advances in Clinical Medicine

Internal Medicine

The Scientific Board of the California Medical Association presents the following inventory of items of progress in internal medicine. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in internal medicine that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Internal Medicine of the California Medical Association and the summaries were prepared under its direction.

Use of Ipratropium Bromide in Chronic Obstructive Pulmonary Disease

Inhaled antimuscarinic agents (atropine sulfate, atropine methylnitrate, ipratropium bromide) can partially relieve airflow obstruction in patients with chronic obstructive pulmonary disease (COPD) by reducing vagally mediated bronchomotor tone. Ipratropium bromide (Atrovent) in metered-dose inhaler form has recently been approved by the Food and Drug Administration for use as a bronchodilator in COPD. Bronchodilation following the use of ipratropium occurs within minutes (slower than with adrenergics) and lasts four hours or more (comparable with adrenergics). Maximal bronchodilation is achieved with metered doses of 40 to 80 μg; the recommended therapeutic dose is two actuations (20 μg per actuation) of the metered-dose inhaler. The major therapeutic advantage of ipratropium (a quaternary ammonium derivative) over atropine (a tertiary ammonium compound) is its poor absorption after inhalation, so that few atropinic side effects occur even with large doses. In therapeutic doses, it has no significant effect on mucus production, viscosity or clearance and, unlike β_2-selective agonists, it does not cause tremor.

A recent double-blind multicenter trial of ongoing therapy with metered doses of ipratropium (40 μg) versus metaproterenol sulfate (1,500 μg) four times a day for 90 days in patients with COPD showed a significantly greater magnitude and duration of bronchodilation in the ipratropium-treated group, which was sustained throughout the three months of the study. Side effects from both agents were infrequent, but tachyphylaxis, obvious with the β-agonist, was less evident with ipratropium. These findings, together with similar results from several smaller-scale studies, support consideration of ipratropium as a first-line bronchodilator in the maintenance treatment of COPD.

Although a large dose of either an antimuscarinic or a β-agonist compound administered alone produces maximal bronchodilation in patients with COPD, at least one study has shown additive bronchodilation in these patients when conventional therapeutic doses of ipratropium and a β-agonist were combined. Further studies are required to evaluate the advantages of combining ipratropium with a β-agonist or theophylline (or both) in the long-term management of COPD.

In patients with atopic asthma, unlike in those with COPD, antimuscarinic agents often cause less bronchodilation than do β-agonists; consequently, ipratropium should be considered a second-line bronchodilator in treating allergic asthma.

Donald P. Tashkin, M.D.
Los Angeles

REFERENCES

Easton PA, Jadue C, Dhingra S, et al: A comparison of the bronchodilating effects of a beta-2 adrenergic agent (albuterol) and an anticholinergic agent (ipratropium bromide), given by aerosol alone or in sequence. *N Engl J Med* Sep 1986;315:735-739.

Gross NJ, Skorodin MS: Anticholinergic, antimuscarinic bronchodilators. *Am Rev Respir Dis* May 1984;129:856-870.

Reprinted from *The Western Journal of Medicine*, September, 1987.

Gross NJ, Skorodin MS: Role of the parasympathetic system in airway obstruction due to emphysema. *N Engl J Med* Aug 1984;311:421-425.

Lightbody IM, Ingram CG, Legge JS, et al: Ipratropium bromide, salbutamol and prednisolone in bronchial asthma and chronic bronchitis. *Br J Dis Chest* Jul 1978;72:181-186.

Tashkin DP, Ashutosh K, Bleecker ER, et al: Comparison of the anticholinergic bronchodilators ipratropium bromide with metaproterenol in chronic obstructive pulmonary disease—A 90-day multi-center study. *Am J Med* Nov 1986;81(suppl 5A):81-90.

The Questionable Value of Routine Admission Urinalyses

Two recent studies questioned the value of the time-honored routine admission urinalysis. Both studies were conducted on internal medicine wards, and both concluded that the impact on patient care of routinely analyzing urine specimens on admission was very small. The findings support the recommendation of the American College of Physicians that no diagnostic tests should be required as routine procedures for patients admitted to hospital.

The major reasons for the test's small impact on patient care are the relatively low diagnostic yield and the even lower likelihood that detected abnormalities represent true disease. By definition, routine admission urinalyses are done for patients without signs or symptoms of urinary tract disorders. Because the prevalence of disease in this group is low, the predictive value of a positive test—the probability that an abnormality represents true disease—also will be low. In addition, many patients admitted to hospital have diseases unrelated to the urinary tract in which transient, self-limited urinary abnormalities are common. Unfortunately, physicians usually cannot tell which findings represent false-positive results or self-limited abnormalities without additional, otherwise unnecessary, diagnostic testing.

Hundreds of millions of urine specimens are analyzed in the United States each year, costing consumers billions of dollars. It appears that doing these tests based on clinical findings and not simply on hospital admission could decrease medical care costs with little adverse effect on patient care.

F. Allan Hubbell, M.D., MSPH
Barbara V. Akin, M.D.
Orange, California

REFERENCES

Akin BV, Hubbell FA, Frye EB, et al: Efficacy of the routine admission urinalysis. *Am J Med* Apr 1987;82:719-722.

Kroenke K, Hanley JF, Copley JB, et al: The admission urinalysis: Impact on patient care. *J Gen Intern Med* Jul 1986;1:238-242.

American College of Physicians, Medical Necessity Project Recommendations: Summary, 1978-1981. Dept of Health and Public Policy, American College of Physicians, 4200 Pine St, Philadelphia, PA 19104.

Diagnosing Pulmonary Embolism

The original urokinase study showed that the clinical diagnosis of pulmonary embolism was not specific enough to justify the risks of anticoagulant therapy: only 162 of 906 patients suspected of having pulmonary embolism had it confirmed angiographically. Subsequently, with quantum improvements in the technology of the perfusion lung scan and the development of a clinically useful ventilation scan, there was widespread use of the combined ventilation-perfusion lung scan for clinical decision making. Unfortunately, no prospective, randomized clinical trial had ever been done to validate the concepts of matched and mismatched scan patterns. This overreliance on the ventilation-perfusion lung scan was the subject in 1977 of a controversial editorial in the *Annals of Internal Medicine.* Much of the literature that appeared after the editorial continued to report results on series flawed by selection bias and other problems. Only one large prospective series studying the sensitivity and specificity of lung scan patterns has been reported, and another is in progress. Before commenting any further, I will review some background information on the risks of anticoagulant therapy.

Heparin use is associated with a 5% to 20% rate of hemorrhagic complications and about a 0.5% to 1% fatality rate. Oral anticoagulation with warfarin sodium is associated with complication rates essentially identical to those mentioned for heparin. Because present recommendations are that patients with venous thrombosis, pulmonary embolism or both are treated with both regimens sequentially, the morbidity and mortality are cumulative. In contrast, pulmonary angiography has a 4% major morbidity rate and a 0.25% fatality rate. Also, the careful use of selective, magnified views allows angiography to be used more safely in patients previously thought to be at high risk, and the refinement of nonionic contrast media may further reduce the risk for renal toxicity.

One large prospective study of the relative sensitivity and specificity of various ventilation-perfusion lung scan patterns found that 86% of "high-probability" scans were associated with an abnormal angiogram, whereas 25% to 40% of "low-probability" scans were associated with abnormal angiograms. Perhaps one of the most important results of this study was the finding of such a "high" prevalence of pulmonary embolism in patients with low-probability scans. The study has been criticized for: a possible low case acquisition rate, routinely doing impedance plethysmography of the lower extremities before referring for scanning and angiography, failure to do angiography in all patients who were scanned, using a new, nonstandard ventilation-perfusion scan classification scheme and an overall high prevalence (55%) of venous thromboembolism in all scan categories. Regardless of these criticisms, this is the only modern, prospective comparison of lung scans and angiography available. The Prospective Investigation of Pulmonary Embolism Diagnosis, sponsored by the National Institutes of Health, is not yet completed.

When the uncertainties associated with the various scan patterns are considered and the risks of treatment with anticoagulant drugs are compared with those of angiography, many physicians believe there is a compelling argument to expand the indications for angiography. Based on available information, clinicians should not rely entirely on the ventilation-perfusion lung scan for decision making in patients felt to have pulmonary embolism, but should strongly consider further diagnostic testing, such as pulmonary angiography or tests to document deep vein thrombosis, as the treatment is essentially the same. Obviously, no single set of recommendations can possibly address the myriad permutations of patient presentations, but the available data indicate that relying on lung scans alone will lead to overtreatment of some patients with false-positive high-probability scans and undertreatment of some with false-negative low-probability scans.

Paul E. Bellamy, M.D.
Los Angeles

REFERENCES

American College of Chest Physicians and National Heart, Lung and Blood Institute Conference on Antithrombotic Therapy. *Chest* Feb 1986;89(suppl):1-106.

Goodman PC: Pulmonary angiography: *Clin Chest Med* Sep 1984;5:465-477.

Hull RD, Hirsch J, Carter CJ, et al: Diagnostic value of ventilation-perfusion lung scanning in patients with suspected pulmonary embolism. *Chest* 1985;88:819-828.

Robin ED: Overdiagnosis and overtreatment of pulmonary embolism: The emperor may have no clothes. *Ann Intern Med* Dec 1977;87:775-781.

Sasahara AA, Hyers TM, Cole CM (Eds): The Urokinase Pulmonary Embolism Trial—A National Cooperative Study. *Circulation* Apr 1973;47(suppl 2):1-100.

Wellman HN: Pulmonary thromboembolism: Current status report on the role of nuclear medicine. *Semin Nucl Med* 1986;16:236-274.

'Routine' Preoperative Laboratory Testing

Patients admitted to hospital for an elective operation commonly undergo a battery of "routine" preoperative laboratory testing. This often includes a complete blood and platelet count, prothrombin time, partial thromboplastin time, electrolytes, blood urea nitrogen, creatinine and glucose levels, urinalysis, chest x-ray film and an electrocardiogram. The goal of such examinations is to detect asymptomatic diseases not apparent on a history and physical examination, which if found and treated appropriately before a surgical procedure would minimize the morbidity and mortality accompanying the operation. Recent studies of such clinical practices have found little scientific support or justification for this goal.

The problem lies in the ability of such tests to detect disease processes in otherwise healthy persons in whom the prevalence of such illnesses is low. Examining just the blood tests that are routinely done (12 in number and assuming "normal" to be the mean value of each test in presumably nondiseased persons plus or minus two standard deviations), in only 54% of all healthy persons screened will all 12 test results be in the "normal" range. Thus, the generation of many false-positive abnormalities is inherent to the statistical assumptions of normalcy for each test and has no actual clinical benefit. Repeat confirmatory and further diagnostic tests to pursue such abnormal laboratory values also contribute to the costs of such screening. Preoperative laboratory testing has been projected in one study to cost about $4.2 million for each life lost. In an era of increasing cost-containment, such funds could be spent more efficiently to save more lives.

Similarly, the usefulness of more expensive preoperative tests, such as the electrocardiogram and chest x-ray film, to detect asymptomatic illnesses capable of affecting the surgical outcome has proved to be minimal in clinical studies of young, otherwise healthy patients. Unnecessary delays in a surgical procedure and the concomitant patient anxiety for the workup of benign diseases (for example, the asymptomatic granuloma presenting as a lung nodule) also contribute to the inadequacies of these tests. In the elderly in whom the number of diseases and their prevalence increase, chest radiographs and electrocardiograms may be more helpful.

Even when such preoperative laboratory tests are ordered, physicians fail more than half the time to note the abnormalities in the chart and to order follow-up tests.

These studies provide evidence that, in the absence of specific clinical indications, "routine" preoperative laboratory testing can be safely eliminated. Because it has been estimated that 50% of all surgical procedures in this country are done on presumably healthy persons, the potential cost savings would be enormous. It is reassuring to know that the "best test" preoperatively in minimizing surgical morbidity and mortality is still a careful history and physical examination.

Lawrence K. Loo, M.D.
Loma Linda, California

REFERENCES

Blery C, Charpak Y, Szatan M, et al: Evaluation of a protocol for selective ordering of preoperative tests. *Lancet* Jan 1986;1:139-141.

Goldberger AL, O'Konski M: Utility of the routine electrocardiogram before surgery and on general hospital admission. *Ann Intern Med* Oct 1986;105:552-557.

Kaplan EB, Sheiner LB, Boeckmann AJ, et al: The usefulness of preoperative laboratory screening. *JAMA* Jun 1985;253:3576-3581.

Tape TG, Mushlin AI: The utility of routine chest radiographs. *Ann Intern Med* May 1986;104:663-670.

Weight Control in Managing Hypertension

Numerous epidemiologic studies have shown a relationship between body weight and hypertension; weight gain increases the risk of hypertension developing. The mechanisms responsible for hypertension in obese patients remain obscure. Neither increased plasma volume, cardiac output, salt intake nor altered adrenergic mechanisms are adequate explanations alone. Obesity increases the cardiovascular risk; part of this increased risk can be ascribed to its association with hypertension. An additional risk occurs because of an increased cardiac output. Both hypertension and an increased stroke volume can contribute to the development of left ventricular hypertrophy and left ventricular failure. Weight loss in both moderately obese and morbidly obese persons will result in a significant reduction of blood pressure and the regression of left ventricular mass.

A lowered blood pressure occurs both in patients who have not received medication for hypertension and those who are already receiving medication. There is no linear relationship between weight loss and blood pressure reduction. It has been suggested that there is a "floor" in the blood pressure, so that the blood pressure will not reduce further despite continued weight loss. It is not clear at what level of weight reduction a floor in the blood pressure will be reached, but even a moderate weight reduction of 5 to 7 kg (10 to 15 lb) will produce a significant improvement in blood pressure control. This degree of weight loss will be more easily achieved than will a return to an ideal body weight. As many as 39% of hypertensive patients can remain normotensive for as long as four years without medication if a weight loss of 5 kg or more is coupled with reduced salt and alcohol intake.

The control of obesity is an important variable in managing patients with hypertension. Physicians should attempt to motivate their patients to lose weight if they are obese. If they succeed, better blood pressure control with fewer antihypertensive drugs should be the result.

Kenneth A Conrad, M.D.
Joanne R. Conrad, R.D., M.S.
Timothy C. Fagan, M.D.
Tucson

REFERENCES

MacMahon SW, Wilcken DEL, MacDonald GJ: The effect of weight reduction on left ventricular mass: A randomized controlled trial in young, overweight hypertensive patients. *N Engl J Med* Feb 6 1986;314:334-339.

Stamler R, Stamler J, Grimm R, et al: Nutritional therapy for high blood pressure: Final report of a four-year randomized controlled trial—The hypertension control program. *JAMA* Mar 20 1987;257:1484-1491.

Subcommittee on nonpharmacological therapy of the 1984 Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure: Nonpharmacological approaches to the control of high blood pressure—Final report. *Hypertension* May 1986;8:444-467.

Relaxation Therapy for Hypertension

The word "hypertension" to most patients implies a condition related to increased stress that by some mechanism results in an elevation of the arterial pressure. Although the role of stress as an etiologic factor in the development of hypertension remains a controversial issue, the effective application of relaxation therapy in managing hypertension is becoming clearer. In recent years nondrug therapies have been increasingly advocated in the initial management of mild hypertension, especially when the diastolic blood pressure remains in the range of 90 to 94 mm of mercury. Furthermore, nonpharmacologic approaches are a useful adjunct in treating moderate or severe hypertension and lead to the use of fewer medications in lower doses. Even though the morbid outcomes from untreated hypertension have not been shown to be lowered by the use of nonpharmacologic therapy, these interventions are generally accepted on the basis that they are not associated with significant risks or side effects.

There are more than 60 published studies on the use of transcendental meditation, yoga, several biofeedback techniques and teaching muscular relaxation in the therapy for hypertension. Most studies have shown a small but statistically significant reduction in systolic and diastolic blood pressures in the range of 2 to 10 mm of mercury, but several have shown only transient effects. The lack of carefully controlled studies using random assignment and blinded measurements and the absence of follow-up beyond eight months in most studies raise serious concerns about the effectiveness of these techniques in a clinical setting.

The first long-term follow-up study of relaxation therapy for mild hypertension was recently published in the *British Medical Journal.* In the original study, 204 patients with newly recognized untreated hypertension were randomly assigned to a relaxation program or a control group with follow-up only. The intervention consisted of eight weekly one-hour group biofeedback sessions and prescribed muscular relaxation techniques twice a day at home. Of the 107 persons assigned to the experimental group, 99 accepted the treatment, and at eight months of follow-up they had a mean reduction in blood pressure of 16.2/6.8 mm of mercury compared with 5.0/0.3 mm of mercury for the control subjects. A four-year follow-up of 86 experimental and 75 control subjects found that the effectiveness of relaxation therapy was maintained at a reduced level. The subjects who had been taught relaxation therapy had a mean reduction of 7.2/3.7 mm of mercury compared with a mean increase in the control group of 1.6/4.1 mm of mercury. Although only 14 of the 86 participants practiced relaxation at least weekly, most (63%) practiced it occasionally.

The mechanism by which relaxation therapies lower blood pressure has not been extensively studied, but may be mediated by lowering of the plasma levels of catecholamines, renin and aldosterone. Patients' expectations may also have a significant role in the effect observed with relaxation training, and a subset may exist of hyperresponsive persons who are likely to benefit. In some of the published studies, less than half of the patients were willing to continue relaxation therapy for more than a few months, and thus it is likely that in clinical practice only a minority of patients having hypertension will actually benefit.

The Health and Public Policy Committee of the American College of Physicians recently concluded that biofeedback is a second-line nonpharmacologic therapy for hypertension. Relaxation training is cheaper, easier to implement and has a greater chance for a wider application in clinical practice. Nonphysician health professionals such as nutritionists and psychologists need to be involved in implementing the nonpharmacologic management of hypertension. Teaching relaxation therapy, including the use of commercially available audiotapes, can play an important role in a multicomponent non-drug approach to treating hypertension.

Eliseo J. Pérez-Stable, M.D.
San Francisco

REFERENCES

Health and Public Policy Committee, American College of Physicians: Biofeedback for hypertension. *Ann Intern Med* May 1985;102:709-715.

Kaplan NM: Non-drug treatment of hypertension. *Ann Intern Med* Mar 1985;102:359-373.

Patel C, Marmot MG, Terry DJ, et al: Trial of relaxation in reducing coronary risk: Four year follow-up. *Br Med J* Apr 1985;290:1103-1106.

Postprandial Hypotension

Angina pectoris and syncope occur in some patients after large meals. In one study, a standardized breakfast for patients aged 75 to 98 years produced a mean fall in the systolic blood pressure—taken in the sitting position—of 13 mm of mercury within 35 minutes after ingesting the meal; a group of subjects aged 18 to 37 years had no significant reduction in blood pressure.

We have found that a meal produced a mean reduction in the supine diastolic blood pressure in normal subjects aged 19 to 31, associated with a reflexive increase in the mean heart rate. In patients with hypertension, a meal also reduced the mean supine diastolic blood pressure, associated with an increase in heart rate. Patients with autonomic dysfunction have a much more dramatic change in blood pressure after meals, averaging a decrease of 49 mm of mercury in the supine systolic blood pressure. Decreases as great as 98 mm of mercury have been seen.

The meal size appears to be an important determinant of hemodynamic effects, and meals with a higher protein content may have greater effects. Ingesting food increases the splanchnic blood flow and decreases total peripheral resistance, probably due to a decreased splanchnic resistance.

In many studies, elderly patients have been observed to have a greater hypotensive response to meals. In these studies, however, the blood pressure was higher in the older patients, and the magnitude of the reduction in blood pressure after the meal was also related to the premeal blood pressure.

Ingesting food lowers both systolic and diastolic blood pressures. Elderly patients, patients with hypertension and patients with autonomic insufficiency tend to have the greatest reductions in blood pressure. The hemodynamic effects of meals may contribute to postprandial syncope and to postprandial angina because of a reflex tachycardia and decreased coronary perfusion pressure. More commonly, blood pressure changes of 5 to 20 mm of mercury related to meals may contribute significantly to an apparent blood pressure lability and may seriously impair the interpretation of blood pressure control in patients with hypertension.

Timothy C. Fagan, M.D.
Kenneth A. Conrad, M.D.
Tucson

REFERENCES

Fagan TC, Sawyer PR, Gourley LA, et al: Postprandial alterations in hemodynamics and blood pressure in normal subjects. *Am J Cardiol* Sep 1986;58:636-641.

Lipsitz LA, Nyquist RP, Wei JY, et al: Postprandial reduction in blood pressure in the elderly. *N Engl J Med* Jul 1983;309:81-83.

Robertson D, Wade D, Robertson RM: Postprandial alterations in cardiovascular hemodynamics in autonomic dysfunctional states. *Am J Cardiol* Dec 1981;48:1048-1052.

'Unloading' Therapy for Heart Failure

Vasodilator therapy can provide substantial benefits to some patients with congestive heart failure. The rationale is based on the physiologic principles of reducing ventricular afterload and preload (hence the term "unloading" therapy). This results in an increased cardiac output and decreased systemic and pulmonary venous pressures. Symptoms of hypoperfusion and congestion are ameliorated. The peripheral vascular tone (both arterial and venous) is increased in most symptomatic patients with congestive heart failure. An increased systemic vascular resistance and resistance to left ventricular ejection by arterial vasoconstriction reduces the forward stroke volume and cardiac output. Venoconstriction contributes to congestive symptoms by increasing pulmonary and systemic venous pressures; the intracardiac volume is also increased. The vasodilator drugs with predominantly arteriolar effects, such as hydralazine hydrochloride, minoxidil and nifedipine, increase cardiac output. Venodilators, such as nitroglycerin, nitrates and molsidomine, can decrease systemic and pulmonary venous pressures. Vasodilator agents with balanced arteriodilator and venodilator properties—angiotensin-converting enzyme inhibitors and α-adrenergic blocking agents—produce hemodynamic effects similar to those of combinations of arteriodilators and venodilators.

During congestive heart failure, abnormalities of neuroendocrine function contribute to a heightened peripheral vascular tone. Elevating levels of circulatory catecholamines reflect increased sympathetic activity. Plasma renin activity is increased in about two thirds of patients who have chronic congestive heart failure. This leads to increased production of the vasoconstrictor angiotensin II and increased release of aldosterone and norepinephrine. In some patients, argininevasopressin levels are also higher than normal. Vasoconstriction mediated by these neuroendocrine systems are, to some extent, counterbalanced by increased production of vasodilator prostaglandins and the vasodilator, atrial natriuretic peptide. In most symptomatic patients, however, the vasoconstrictor influences predominate, causing a net increase in systemic vascular tone.

Vasodilators have a variety of mechanisms of action. These include the following: antiadrenergic drugs (α-receptor blocking agents, in particular), β_2-receptor agonists, vasopressin antagonists, serotonin antagonists, prostaglandins, calcium entry blocking agents, angiotensin-converting enzyme inhibitors and the direct-acting vasodilators. Hemodynamic studies using these agents usually show initially improved systemic hemodynamics and cardiac performance. Long-term clinical benefit, however, does not occur with all vasodilators. Direct-acting arteriolar vasodilators such as hydralazine or minoxidil, when used alone, do not improve the exercise capacity or clinical state significantly in patients with chronic congestive heart failure. α-Receptor blocking agents such as prazosin hydrochloride are also ineffective in most patients. In contrast, isosorbide dinitrate and the angiotensin-converting enzyme inhibitors, captorpil or enalapril maleate, improve the clinical state and exercise tolerance in most patients. Recently a Veterans Administration cooperative trial has reported that a combination of hydralazine, 300 mg a day, and isosorbide dinitrate, 160 mg a day, can improve survival of patients with mild to moderately severe chronic congestive heart failure.

Based on these reports, either a combination of hydralazine with nitrates or angiotensin-converting enzyme inhibitors should be considered in the "unloading" therapy for chronic heart failure. A lack of comparative studies prevents making a clear choice between these approaches, although correcting neuroendocrine abnormalities more effectively by using angiotensin-converting enzyme inhibitors may favor the latter.

Kanu Chatterjee, M.D.
San Francisco

REFERENCES

Captopril Multi-Center Research Group: A placebo-controlled trial of captopril in refractory chronic congestive heart failure. *J Am Coll Cardiol* 1983;2:755-763.

Chatterjee K, Parmley WW: Vasodilator therapy for acute myocardial infarction and chronic congestive heart failure. *J Am Coll Cardiol* Jan 1983;1:133-153.

Chatterjee K, Viquerat CE, Daly P: Neurohumoral abnormalities in heart failure. *Heart Failure* Mar-Apr 1985;1:69-83.

Cleland JG, Dargie JH, Ball SG, et al: Effects of enalapril in heart failure: A double-blind study of effects on exercise performance, renal function, hormones and metabolic state. *Br Heart J* Sep 1985;54:305-312.

Cohn JN, Archibald DG, Ziesche S, et al: Effect of vasodilator therapy on mortality in chronic congestive heart failure—Results of a Veterans Administration Cooperative Study. *N Engl J Med* 1986;314:1547-1552.

Treatment of Gram-Negative Bacterial Meningitis

The third-generation cephalosporin antibiotics have greatly improved the prognosis for adult patients with gram-negative bacillary meningitis. Before 1980, when aminoglycoside antibiotics and chloramphenicol were used extensively, case-fatality rates ranged from 40% to 90%. Since the third-generation cephalosporins were introduced, case-fatality rates have fallen dramatically; in fact, cure rates of 75% to 90% have become the rule. Of these agents, cefotaxime sodium and moxalactam disodium have received the most usage for this indication. Available data suggest that ceftriaxone sodium, ceftazidime and ceftizoxime sodium offer comparable efficacy. These antibiotics show potent bactericidal activity against not only *Escherichia coli* and *Klebsiella pneumoniae,* the leading pathogens, but also against many other Enterobacteriaceae. Minimum inhibitory concentrations range from 0.01 to 1.0 μg per ml for most genera of this family except *Enterobacter.* In patients with meningitis, drug concentrations in cerebrospinal fluid (CSF) greatly exceed these minimum inhibitory concentrations: peak concentrations generally range from 10 to 40 μg per ml. Thus, unlike aminoglycoside antibiotics or chloramphenicol, third-generation cephalosporins produce CSF antibiotic concentrations that are 20 to 100 times the minimum inhibitory concentration of the infecting bacterium, and they rapidly sterilize the CSF.

Despite the successes of third-generation cephalosporins, meningitis caused by certain species of gram-negative bacilli remains a difficult and somewhat controversial therapeutic problem. The most troublesome organisms include the more resistant Enterobacteriaceae, such as *Enterobacter cloacae,* as well as certain non-Enterobacteriaceae, notably *Pseudomonas aeruginosa* and *Acinetobacter calcoaceticus.* Therapy for infections caused by these organisms is optimally based on the results of quantitative susceptibility tests. As a general rule, when minimum inhibitory concentrations of the third-generation cephalosporins for the pathogen are greater than 1.0 μg per ml, patients require the most active third-generation cephalosporin or extended-spectrum penicillin plus the most active aminoglycoside antibiotic. Trimethoprim-sulfamethoxazole may be useful against some organisms, such as *A calcoaceticus.* Aminoglycoside antibiotic administration by both intravenous and intralumbar routes is recommended. Intraventricular administration through a reservoir should be considered for patients who have relapsed or responded poorly to other regimens.

Larry J. Strausbaugh, M.D.
Portland, Oregon

REFERENCES

Landesman SH, Corrado ML, Shah PM, et al: Past and current roles for cephalosporin antibiotics in treatment of meningitis. *Am J Med* Oct 1981;71:693-703.

Mullaney DT, John JF: Cefotaxime therapy—Evaluation of its effect on bacterial meningitis, CSF drug levels and bactericidal activity. *Arch Intern Med* Sep 1983;143:1705-1708.

Sande MA, Smith AL, Root RK (Eds): Contemporary Issues in Infectious Diseases—Vol 3, Bacterial Meningitis, New York, Churchill Livingstone, 1985.

Home Intravenous Antibiotic Therapy

Home intravenous (IV) antibiotic therapy presents an opportunity to provide hospital level therapy at a substantially lower cost while enabling patients to resume a near-normal life-style.

Proper patient selection is the cornerstone of successful home therapy. Patients appropriate for home treatment have no indications for hospital care other than the need to receive antibiotics intravenously. Common infections treated are osteomyelitis, septic arthritis, diabetic foot infections, endocarditis (after inpatient observation) or any other conditions wherein patients are medically stable except for an infection requiring IV administration of antibiotics.

Efficacy is the primary consideration for antibiotic selection in any treatment setting, but one must additionally adjust dosing times to accommodate patients' sleep patterns and use regimens that minimize infusion frequency. Cefazolin, cefonicid sodium, cefoperazone sodium and ceftriaxone sodium are used extensively because their infrequent dosing requirements, safety and spectrum match many conditions amenable to home therapy.

A competent, effective IV therapy team is another critical component of this technique. IV therapists need to have both expert nursing skills and knowledge regarding potential toxicity. They must remain readily available to patients on a 24-hour basis and possess strong teaching skills so that patients develop confidence and judgment.

Issues still to be standardized are the optimal organization of home care agencies, patient and diagnosis qualification criteria, standards of care for physicians and agencies, reimbursement and liability exposure.

In the final analysis, home IV therapy makes sense in today's thrust toward providing as much care as is safe and feasible outside hospital. It synergizes with the public impulse to accept more responsibility for personal fitness and health. To invoke this new modality, physicians need only blend their current expertise and sound medical judgment with the special considerations for home therapy summarized above. When home IV antibiotic therapy is done well, everyone benefits.

John F. Trowbridge, M.D.
Santa Rosa, California

REFERENCES

Poretz DM, Eron LJ, Goldenberg RI, et al: Intravenous antibiotic therapy in an outpatient setting. *JAMA* Jul 1982;248:336-339.

Rehm SJ, Weinstein AJ: Home intravenous antibiotic therapy: A team approach. *Ann Intern Med* 1983;99:388-392.

Smith WE: Ethical, economic and professional issues in home health care. *Am J Hosp Pharm* Mar 1986;43:695-698.

Vaccination for Hepatitis B

Two safe vaccines containing purified hepatitis B surface antigen (HBsAg) are now available for preventing hepatitis B infection. The first vaccine is derived from the plasma of screened, healthy HBsAg carriers. Even though extensive tests show that all known viruses are inactivated by the vaccine preparation process, many patients and health care providers have been reluctant to use this plasma-derived vaccine because of concerns about the acquired immunodeficiency syndrome. The second vaccine, released in early 1987, is prepared from recombinant DNA propagated in yeast. The recombinant vaccine, because it is not plasma derived, has had greater acceptance but has no other advantages and has a similar level of safety and cost. Concerns about long-term efficacy of the yeast-recombinant vaccine have been raised because of reduced antigenicity when compared with plasma-derived HBsAg.

Protective levels of antibody to HBsAg develop in about 85% to 95% of vaccinated healthy adults, who receive three doses of vaccine intramuscularly in the deltoid. Antibody levels tend to be lower if the injections are given in the buttock or to patients who have the usual anti-HBsAg response, protection approaches 100%. The duration of protective antibody levels is not yet known and booster doses may be required at some future time.

There are no known adverse or beneficial effects to vaccinating previously infected persons. Thus, the decision to screen potential vaccinees (using either hepatitis B core antigen or anti-HBsAg) is an economic one, based on the cost of screening tests and vaccination versus the likelihood that a patient has previously had hepatitis B.

Hepatitis B vaccine is recommended for persons at increased risk of hepatitis B developing. Potential vaccinees include homosexually active men, users of illicit injectable drugs, hemodialysis patients, selected immigrants, prisoners, institutionalized retarded persons, recipients of factor VIII or IX concentrates, long-term transfusion recipients, household and sexual contacts of hepatitis B carriers and health care workers with frequent exposure to blood or blood products.

Susan W. Tolle, M.D.
Portland, Oregon

REFERENCES

Centers for Disease Control Department of Health and Human Services: Recommendations for protection against viral hepatitis. *Ann Intern Med* Sep 1985;103:391-402.

Dienstag JL, Werner BG, Polk BF, et al: Hepatitis B vaccine in health care personnel: Safety, immunogenicity, and indicators of efficacy. *Ann Intern Med* Jul 1984;101:34-40.

Hollinger FB, Hepatitis B vaccines—To switch or not to switch. *JAMA* May 1987;257:2634-2636.

Recombinant hepatitis B vaccine. *Med Lett Drugs Ther* Dec 5 1986; 28:118-119.

Intraperitoneal Chemotherapy for Ovarian Cancer

Ovarian cancer is the most common fatal gynecologic malignant disorder in the United States and the fourth leading cause of cancer death in women, with 18,000 new cases and 11,000 deaths per year. About 80% of patients with ovarian cancer have advanced disease (stage III or IV) at diagnosis. With the introduction of cisplatin-based combination chemotherapy administered systemically, surgically documented complete response rates of 20% to 30% can now be achieved. Few of these responses, however, result in long-term relapse-free survival (seven-year survival rate less than 15%).

Ovarian cancer is a disease that tends to remain confined to the peritoneal cavity even in its most advanced stages. This makes it particularly amenable to regional methods of drug delivery. A recently developed technique for treating advanced ovarian cancer has been the direct intraperitoneal administration of chemotherapuetic agents. One of the major principles of intraperitoneal chemotherapy is to administer the anticancer agent in a large fluid volume of a normal saline solution (two liters) to ensure adequate drug distribution throughout the peritoneal cavity. Another is to administer agents known to be active against ovarian cancer when administered systemically. With intraperitoneal administration, high drug concentrations can be achieved in the area of the tumor while corresponding systemic levels are much less, resulting in less drug exposure to normal tissues. This results in an enhancement of the drug's therapeutic index. We have used a totally implantable drug delivery system for intraperitoneal drug administration in our studies. It consists of a Tenckhoff catheter attached to a Port-a-Cath portal (Pharmacia Nu Tech).

The most active single agent for the treatment of ovarian cancer is cisplatin. We have conducted a series of intraperitoneal cisplatin-based chemotherapy trials over the past several years. Agents that we have used in combination with cisplatin have included cytarabine and, most recently, etoposide. These studies have been done in patients with persistent disease following administration of at least six cycles of intravenous cisplatin-based chemotherapy. Two important conclusions have emerged from these studies. First, the intraperitoneal administration of chemotherapy does not appear to be superior to administering it intravenously in patients with bulky intraperitoneal disease. In patients with small-volume disease (tumor nodules less than 2 cm in diameter), however, the results have been excellent, with 70% of patients alive, with a median follow-up of 29 months and with an apparent plateau on the survival curve. These results are superior to any other published data in patients with refractory ovarian cancer.

These encouraging results need to be confirmed in prospective, randomized clinical trials involving a much larger number of patients. The Southwest Oncology Group is currently conducting a prosepctive clinical trial in which patients with previously untreated stage III ovarian cancer (disease confined to the peritoneal cavity; tumor nodules less than 2 cm in diameter) are being randomly assigned to intraperitoneal cisplatin-containing chemotherapy. Many single-arm clinical trials of intraperitoneal chemotherapy have been initiated over the past two years at a number of university medical centers. In addition, based on the above encouraging results, intraperitoneal administration of cisplatin is being more widely used in community practice for ovarian cancer patients with refractory, small-volume disease confined to the peritoneal cavity.

Solomon Zimm, M.D.
La Jolla, California

REFERENCES

Dedrick RL, Myers CE, Bungay PM, et al: Pharmacokinetic rationale for peritoneal drug administration in the treatment of ovarian cancer. *Cancer Treat Rep* Jan 1978;62:1-11.

Markman M, Cleary S, Lucas WE, et al: Intraperitoneal chemotherapy with high-dose cisplatin and cytosine arabinoside for refractory ovarian carcinoma and other malignancies principally involving the peritoneal cavity. *J Clin Oncol* Jul 1985;3:925-931.

Pfeifle CE, Howell SB, Markman M, et al: Totally implantable system for peritoneal access. *J Clin Oncol* Nov 1984;2:1277-1280.

Zimm S, Cleary SM, Lucas WE, et al: Phase I/pharmacokinetic study of intraperitoneal cisplatin and etoposide. *Cancer Res* Mar 17 1987;47:1712-1716.

Zimm S, Markman M, Cleary SM, et al: Survival of patients with small volume, refractory ovarian carcinoma treated with intraperitoneal cisplatin-based chemotherapy, *In* Salmon SE (Ed): Adjuvant Therapy of Cancer V, New York, Grune & Stratton, in press.

Bone Marrow Transplantation as Primary Treatment of Leukemia

Considerable progress has been made during the past ten years in the treatment of acute and chronic myelogenous and acute lymphoblastic leukemia using bone marrow transplantation.

In the initial trial of *allogeneic* bone marrow transplantation in patients with relapsed acute myelogenous leukemia by the Seattle transplant team, a long-term relapse-free survival of 13% was achieved in patients for whom all prior therapies had failed. When patients, however, were transplanted earlier in the course of their disease—in first remission—relapse rates dropped to 15% to 20% and overall survival is now 40% to 50%. Because chemotherapy for acute myelogenous leukemia has been improving and the complications of bone marrow transplantation have remained significant, the role and timing of allogeneic transplantation have been questioned.

The success of allogeneic bone marrow transplantation in the treatment of acute myelogenous leukemia was recently confirmed by three randomized studies of transplantation versus chemotherapy. These studies all show a greatly decreased risk of relapse but considerable mortality due to graft-versus-host disease and concurrent infections following bone marrow transplantation in comparison with consolidation chemotherapy. As a result, overall survival is better following bone marrow transplantation, but the complication rate remains high. Further success will depend on the improved abrogation of graft-versus-hot disease and fewer infectious complications. Attempts to decrease graft-versus-host disease by T-cell depletion of the donor marrow have been successful in abrogating the reaction but have unfortunately been complicated by higher rates of fungal infection, a greater risk of graft rejection and a higher risk of leukemic relapse.

Autologous transplantation for patients with acute myelogenous leukemia in both first and second (or third) remission avoids the risk of graft-versus-host disease but has a potentially higher relapse rate than allogeneic bone marrow transplantation. Preliminary results indicate that 25% to 40% of patients in first remission may achieve at least one year of disease-free survival following ablative chemotherapy and reinfusion of marrow harvested and frozen while in remission. Autologous transplantation of marrow purged of residual leukemic cells with 4-hydroperoxycyclophosphamide has resulted in a two-year disease-free survival of 40% for patients with acute myelogenous leukemia in second or third remission.

For patients with chronic myelogenous leukemia there had been no hope for cure and no improvement in survival with any form of standard therapy since George Richards Minot introduced splenic irradiation in the 1920s. Now data clearly show that allogeneic bone marrow transplantation will provide a 50% to 60% relapse-free survival in patients with chronic myelogenous leukemia in chronic phase. Results are better the earlier the transplant is done after diagnosis and when patients are younger than age 30. Especially encouraging is the absence of Philadelphia chromosome-positive cells as long as five years after transplantation. When patients reach the accelerated phase of chronic myelogenous leukemia or an overt blast crisis develops, disease-free survival drops to 15%. Results of autologous transplants for chronic myelogenous leukemia have been uniformly poor thus far. Using partially matched siblings with T-cell depletion of the donor marrow or matched unrelated donors has had limited success, but complications such as increased rates of graft rejection and relapse have limited this to an experimental approach at present.

Allogeneic transplantation for acute lymphoblastic leukemia has not been as successful, primarily because of a high posttransplant relapse rate (60%). Changes in the conditioning chemotherapy regimen may improve the outcome. A relapse-free survival rate of 30% in children in second remission and without human leukocyte antigen-matched donors has been achieved by using monoclonal antibodies to common acute lymphocytic leukemia antigen to deplete autologous marrow of leukemic cells.

The use of improved conditioning regimens to decrease the possibility of relapse, new ways of treating the marrow to purge it of T cells or leukemic cells and enhanced prevention of posttransplant infections will enable more patients with leukemia to be treated successfully. In time, partially matched and unrelated transplants will also become practical. Ultimately, it should become possible to culture pure marrow stem cells, avoiding graft-versus-host disease entirely.

Current recommendations would include allogeneic bone marrow transplantation in first remission for patients younger than 40 years who have acute myelogenous leukemia, autologous bone marrow transplantation for patients between the ages of 40 and 55 with acute myelogenous leukemia or for those younger than age 40 without a matched donor, allogeneic marrow transplantation for patients younger than 50 years with chronic myelogenous leukemia in the chronic phase and allogeneic transplantation for patients younger than 40 years with relapsed acute lymphoblastic leukemia.

Marek J. Bozdech, M.D.
San Francisco

REFERENCES

Applebaum FR, Dahlberg S, Thomas ED, et al: Bone marrow transplantation or chemotherapy after remission induction for adults with acute nonlymphoblastic leukemia. *Ann Intern Med* 1984;101:581-588.

Pirsch JD, Maki DG: Infectious complications in adults with bone marrow transplantation and T-cell depletion of donor marrow. *Ann Intern Med* 1986;104:619-631.

Thomas ED, Clift RA, Fefer A, et al: Marrow transplantation for the treatment of chronic myelogenous leukemia. *Ann Intern Med* 1986;104:155-163.

Thomas ED: Marrow transplantation for malignant diseases. *J Clin Oncol* 1983;1:517-531.

Yeager AM, Kaiser H, Santos GW, et al: Autologous bone marrow transplantation in patients with acute nonlymphocytic leukemia, using ex vivo marrow treatment with 4-hydroperoxycyclophosphamide. *N Engl J Med* 1986;315:141-147.

Physician-Patient Communication

Recent social scientific research has clarified certain social structural barriers to physician-patient communication. Practicing internists spend little time giving information to their patients (about 1.3 minutes on the average in encounters lasting about 20 minutes), overestimate the time they spend giving information (by a factor of about nine) and underestimate their patients' desire for information. College-educated patients and those with upper- or upper-middle-class occupations generally receive more information than do patients who have not gone to college or who hold working-class occupations. There is no difference between poorly educated, lower-class patients and better educated, upper-class patients in their desire for information. Physicians, however, misperceive this desire much more commonly for poorly educated or lower-class patients. Busier internists who see more than 20 patients per day spend much less time giving information and also give a smaller number of explanations. Because adequate communication takes time, this finding has implications about the number of patients whom physicians should reasonably see per day in clinical practice.

Another fruitful direction of research has focused on nonverbal communication and the sociolinguistic structure of physician-patient encounters. When physicians are skillful at decoding body movement and postural cues to emotion (as measured by tests of nonverbal communication ability), their patients show higher levels of satisfaction and compliance. Interestingly, physicians' expression of nonverbal tension in encounters is positively associated with patients' satisfaction and compliance, probably because it conveys a strong task orientation to which patients respond favorably. Physicians frequently interrupt patients during encounters; usually these interruptions involve physician-initiated questions. Such a "high-control style" may have counterproductive effects in history taking, especially when it leads physicians to overlook nontechnical concerns that patients feel are important in their everyday lives. Interrupting behavior also may reflect sexual differences in language use, because female physicians tend to interrupt their patients much less frequently than do male physicians.

Training programs should emphasize the potentialities for improving physician-patient communication. In particular, physicians should know that patients frequently want more information than practitioners realize and that sociolinguistic differences in language use can impede effective communication. Nonverbal communication skills and the highly structured, interrogative mode of the medical history also deserve reconsideration in medical education.

Shiraz Mishra, M.D.
Howard Waitzkin, M.D., Ph.D.
Irvine, California

REFERENCES

Beckman HB, Frankel RM: The effect of physician behavior on the collection of data. *Ann Intern Med* Nov 1984;101:692-696.

Mishler EG: The Discourse of Medicine: Dialectics of Medical Interviews. Norwood NJ, Ablex Publ, 1984.

Waitzkin H: Doctor-patient communication: Clinical implications of social scientific research. *JAMA* Nov 1984;252:2441-2446.

Waitzkin H: Information giving and medical care. *J Health Soc Behav* Jun 1985;26:81-101.

West C: Routine Complications: Troubles With Talk Between Doctors and Patients. Bloomington, Ind, Indiana University Press, 1984.

ADVISORY PANEL TO THE SECTION ON INTERNAL MEDICINE

John R. Gamble, M.D.
Advisory Panel Chair
CMA Scientific Board Representative
San Francisco

Robert M. Karns, M.D.
CMA Section Chair
Beverly Hills

Eugene S. Ogrod, II, M.D.
CMA Section Secretary
Sacramento

Edward Chow, M.D.
CMA Section Assistant Secretary
San Francisco

Malcolm S.M. Watts, M.D.
San Francisco

Stewart Shankel, M.D.
Loma Linda University

Ferid Murad, M.D.
Stanford University

Jerry P. Lewis, M.D.
University of California, Davis

Jeremiah G. Tilles, M.D.
University of California, Irvine

Daniel H. Simmons, M.D.
University of California, Los Angeles

Helen M. Anderson, M.D.
University of California, San Diego

Richard Root, M.D.
Section Editor
University of California, San Francisco

John Bethune, M.D.
University of Southern California

Linda Hawes Clever, M.D.
San Francisco

Donald I. Feinstein, M.D.
Los Angeles

Ernest E. Pund, Jr, M.D.
La Jolla

R

FOR PHYSICIANS & STAFF

3rd ANNUAL

Medical Expo '88

HARTFORD CIVIC CENTER
APRIL 20 - 21

SPONSORED BY
THE HARTFORD COUNTY
MEDICAL ASSOCIATION

SAVE THE DATES

- SYMPOSIUM — THE AIDS CRISIS *Educating the Health Care Community*
- CME Credits (pending approval)
- Over 300 exhibits displaying the newest equipment, products and services.
- Free admission to symposium and exhibits

For information, call Robert Donnell Productions 233-3654 or 1-800-243-9774 (outside CT)

CSMS Members:

Let's Talk About A New Concept In Health Care.

Century 2000.

Century 2000. A Preferred Provider Program in which more than 4,000 health care providers in this state are now participating.

Century 2000. Providing quality with an emphasis on preventive care.

Century 2000. Reducing costs by encouraging members to use its managed care network of Preferred Providers.

Century 2000. For information on how you can become a Preferred Provider call 1-800-922-1742 extension 5137.

Blue Cross
Blue Shield
of Connecticut

Alzheimer's Disease and Dementia: New Perspectives on an Old Problem

PETER A. ENGEL, M.D.

ABSTRACT—Alzheimer's disease (AD), an age related dementia, has become a national epidemic. This paper considers the epidemiologic, clinical, and neuropathologic features of AD, its predominance in women, links with Down's syndrome (DS), and potential treatment. Identification of the A4 amyloid monomer of neuritic plaque and cerebrovascular amyloid, the mapping of the A4 amyloid gene to chromosone 21, and duplication of this gene in AD and DS defines the genetic component of Alzheimer's disease. Severe cholinergic deficiency of AD is now viewed in a spectrum of multiple neurotransmitter losses in a disease which probably begins in the cortex and spreads retrograde to subcortical structures. AD is a reference point for recognition of other important dementias and confusional syndromes, several of which are discussed.

> You are old father William, the young man said,
> And your hair has become very white;
> And yet you incessantly stand on your head—
> Do you think at your age, it is right?
>
> In my youth, father William replied to his son,
> I feared it might injure the brain:
> But now that I'm perfectly sure I have none,
> Why, I do it again and again.
>
> *Lewis Carroll*

Senility, once dismissed as an expected debilitation of the mind in late life has given way to an explosion of interest in the dementing illnesses. In the past decade a prodigious research effort spanning a range of disciplines from clinical observation and epidemiology to neuropathology, neurochemistry and molecular genetics is beginning to mold our understanding of these devastating disorders. Recent discoveries, particularly in the pathogenesis of Alzheimer's disease are crystalizing directions for future research.

Dementing illnesses, particularly Alzheimer's disease (AD), demand our attention because they are epidemic, and the prevalence of the Alzheimer's disease as well as the other dementias is strongly age related. Three to five percent of the population aged 65-75 are affected, and by age 80, the prevalence rises to 20%.[1] Since 1940 those aged 75 and above have quadrupled their numbers to 11.9 million and will double that number again by the year 2030. Thus, the common achievement of longevity has created a huge and growing number of demented citizens (US Census estimate).

Because of its predominance in this epidemic, Alzheimer's disease will be the focus of this discussion. The major features of this illness will then serve as a point of reference for the other important dementing disorders and confusional syndromes.

Epidemiology: Sex Differences, Down's Syndrome and Alzheimer's Disease

Both European and US studies confirm the common nature of late life dementias with overall prevalence rates ranging from 0.1% for ages 55-64 to about 25% for ages 85 and above.[2-6] The respective percentages for AD are less than 0.1 to 20%.[1,5] A large number of factors ranging from life events to medical illnesses and histocompatability HLA typing show no convincing relationship to AD. Head trauma is the only variable consistently associated with increased risk.[6,7]

Both the incidence and prevalence of presenile (onset less than 65) and senile dementia of the Alzheimer type are somewhat higher in women even after age adjustment for the longer female life expectancy.[2-4,6,8,9] This increased risk in women may have important etiologic implications.

Large familial studies of AD probands in the Minnesota State Hospital system and in several other populations convincingly demonstrate the increased incidence rates for AD in siblings of proband cases with younger probands conferring higher risk on their family members.[10,11] Both Heston and Heyman et al reported an excess of Down's Syndrome among relatives of patients with AD and increased prevalence in AD of thyroid disease, lymphoma, and immune diathesis, disorders which are commonly associated with Down's syndrome.[12,13]

PETER A. ENGEL, M.D., Director, Geriatric Service and Assistant Chief of Medicine, Department of Medicine, New Britain General Hospital; Assistant Professor of Medicine, University of Connecticut School of Medicine, Farmington, CT.

Reprint requests to: Department of Medicine, New Britain General Hospital, 100 Grand St., New Britain, CT 06050 (Dr. Engel).

A remarkable connection links AD and Down's syndrome (DS) since virtually 100% of DS patients surviving to mid-life develop the characteristic neuropathologic changes of Alzheimer's disease associated with further impairment of their already limited intellect.[11] These connections have driven an exceedingly fruitful research effort which will unfold later in this review.

AD is the predominant dementing illness with vascular (multi-infarct) dementia (MID), mixed AD and MID, drug intoxication, alcohol related dementia, and normal pressure hydrocephalus following in decreasing frequency. In our experience at the New Britain General Hospital Geriatric Service, 71% of 79 demented outpatients evaluated in the past two years, had clinical AD. In a similar service at the University of Washington, the figure was 74.5% of 200 patients.[14] Other less common but important dementias are included in Table 1.

Table 1
PREVALENCE OF VARIOUS DEMENTIAS

Alzheimer's disease	44-74.5%
Multi-infarct dementia	10-15%
Mixed	10%
Hydrocephalus	5-10%
Alcoholic dementia	
Mass lesions	
Pick's disease	<5%
Creutzfeld-Jakob	
Syphilis	
Hypothyroidism	
B_{12} deficiency	
Lyme disease encephalitis	
AIDS dementia	

Adapted from Strub RL, Black FW: *Organic Brain Syndromes: An Introduction to Neurobehavioral Disorders.* FA Davis Co., Philadelphia, 1981:169, ref 14, and New Britain General Hospital data. AD prevalence is lower in hospital based surveys.

Alzheimer's Disease: Clinical Features and Neuropathologic Correlation

Dementia is a syndrome of intellectual deterioration sufficiently severe to affect occupational and social competence. A spectrum of deficits characterizes AD which include learning and memory, language, praxis (the ability of execute complex motor tasks), visuospatial function, and higher intellectual abilities. Memory failure usually predominates early in the illness. The appearance and progression of the symptoms is often subtle such that neither the patient nor family is able to pinpoint the time of onset. Rarely a progressive aphasia is the initial manifiestation of AD.[15] More often a language disorder is conspicuous in the Azheimer syndrome and can be easily characterized with simple aphasia screening tests. Even as the deficits of memory, language, and praxis progress, social competence and temperament as well as capacities of attention and vigilance remain well preserved until the illness is well advanced. Although the sleep cycle is often disorganized, when awake, patients maintain normal levels of consciousness.

The neurological and physical examinations in early AD are usually normal, patients often being quite vigorous. The illness progresses slowly over 5-20 years with earlier age of onset often marked by a more aggressive decline. There seems to be considerable heterogeneity in this disease with those developing myoclonus or extrapyramidal signs later in their course suffering a more rapid progression.[16]

Neuropathologic Correlations

The characteristic clinical deficits of AD are paralled by a focal pattern of neuropathological changes in the cortical association areas and the hippocampal-amygdaloid complex. In the parietotemporal association areas language function predominates in the left dominant hemisphere while visuospatial function predominates on the right. The association areas might be viewed as processing centers which integrate drive, affect, and experience with highly processed visual, auditory, and somatosensory input. The disruption of these areas would be expected to impair language, the interpretation of spatial relationships, and the ability to plan complex motor or cognitive activities.

The amygdala, hippocampus, and parahippocampal gyrus, critical mediators of learning and memory, are virtually always damaged in AD with the most severe injury occuring in the subiculum and layers II and IV of the entorhinal cortex. These structures project and receive input from many cortical and subcortical regions serving in a sense as relays, linking one cortical region to another. Hippocampal damage may disrupt these cortico-cortical links resulting in a "disconnection syndrome" which may contribute to the clinical features of this illness.[17,18]

The frontal lobes are generally less involved while the primary motor, somatosensory, and visual cortices are spared.[19] Also damaged in AD are the nucleus basalis of Mynert in the basal forebrain which projects cholinergic input to the cortex; the locus ceruleus with its noradrenergic cortical projections, (Figure 1) and the serotonergic raphe nuclei.[20,21] The substantia nigra and the striatum, recipient of nigrostriatal dopaminergic projections, are relatively well preserved as are cholinergic neurons in the striatum.

Cortical regions damaged in AD demonstrate highly characteristic neuropathologic features including neuritic plaques, neurofribrillary tangles, cerebrovascular amyloid deposits in small vessels of the meninges and cortex, and selective loss of large neurons. Also characteristic but less frequent are eosinophilic structures called Hirano bodies and granulovacuolar degeneration of neurons. Compared to normal age matched controls neuronal loss is relatively modest, about 10% overall, and limited to the larger cells greater than 90 μm^2. Disproportionate loss occurs in affected regions, particularly the hippocampus, where cell death may reach 50%.[1] The focal nature of neuronal destruction and distribution of plaques and tangles correlates well with the clinical syndrome.

Although neurofibrillary tangles, neuritic plaques, and

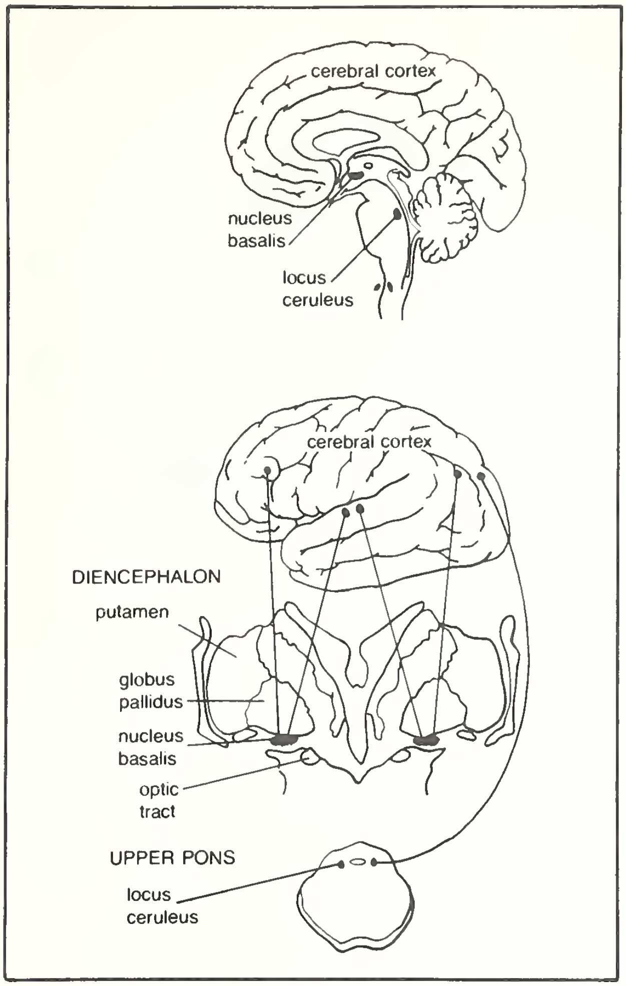


Figure 1

Anatomical relationships between the nucleus basalis of Mynert, locus ceruleus and the cerebral cortex. Reprinted with permission from, Bondareff W: Neurobiology of Alzheimer's disease. Psychiatric Annals 1984, 14: p179.

cerebrovascular amyloid may be the pathologic hallmarks of AD, they also occur though at much lower density in the brains of intellectually normal elderly individuals.[22] Of these three features the neuritic plaque is highly specific to AD, DS, and old age, a peculiar and provocative finding. In contrast, tangles occur in several disorders including the "slow virus" (prion) infections, namely Creutzfeld-Jakob disease, scrapie, and kuru; in dementia pugulistica, and subacute sclerosing panencephalitis. The association of tangles with these varied conditions suggests a single pathologic response to a variety of insults.

Tangles and Plaques: Relation to the Pathogenesis of AD

Neurofibrillary tangles are abnormal neurons filled with cytoplasmic filaments of 10nm diameter. These paired helical filaments (PHF) are antigenically related to the normal neurofilament proteins particularly the 62,000 MW tau.[23] Abnormally phosphorylated tau appears to be a major component of PHF.[24,25]

Neuritic plaques are composed of clusters of degenerating axonal and dendritic nerve terminals with a central core of amyloid fibrils.[1,26] Amyloid describes a class of polypeptide monomers which polymerize into a characteristic configuration, the β pleated sheet. Cerebrovascular and neuritic plaque amyloid has been identified only in the central nervous system and unlike systemic amyloid is not derived from immunoglobulin light chains. Numerous other immunoproteins and enzymes are found in plaque including traces of IgG, kappa and lambda light chains, the complement factors Clq, C3b, C3c, C3d, and C4, and a protease inhibitor (alpha 1 antichymotrypsin).[26,27] Their significance in plaque pathogenesis is unclear. In addition, plaque cores contain aluminosilicates in high concentration.[28,29]

The recent discovery, isolation, and sequencing of the amyloid monomer marks the first of two remarkable advances in our understanding of AD. This 4,000 Dalton polypeptide of about 40 amino acids was employed to produce a complementary DNA probe, used in turn to search for the amyloid gene.[24] Subsequent work mapped that gene to chromosone 21 near the familial AD gene locus.[30-32] In trisomy 21, karyotypically normal DS and in AD, both sporadic and familial, the A4 gene is found in triplicate, and as such provides a template for excess production of a gene product which is ordinarily found in smaller quantities in senescent brain.[33] Whether A4 amyloid overproduction is a primary event in AD or an abnormal response to neuronal injury remains to be determined.

These extraordinary discoveries define a genetic component of AD which is entirely consistent with earlier epidemiologic work. Yet, identification of the "Alzheimer-amyloid gene," two copies of which occur in normal individuals, also provokes several critical questions. Why, for example, would normal individuals possess a seemingly distructive gene? Why is this gene not expressed until late life and its expression limited to specific areas of the brain? What factors modulate the expression of this gene? Steroid hormones, neurotransmitters, and growth factors represent several possibilities.

The A4 monomer appears to be derived from a much larger precursor molecule which resembles a glycosolated cell-surface receptor.[34] mRNA for A4 occurs in a variety of tissues although A4 is not found outside the brain. DNA from this gene seems to be conserved in a variety of species, a concept reinforced by the identification of A4 amyloid in senile plaques and cerebrovascular amyloid of aged moneys, orangutans, polar bear, and dog.[31,35] These data suggest a utility of the precursor molecule to the organism and that distortions in gene regulation, abnormal post-translational changes in the precursor molecule, or its impaired disposal could result in accumulation of excess A4 amyloid. While any of these processes might contribute to A4 amyloid deposition in late life, an extra copy of the gene found in AD and DS and increased production of gene product may accelerate this process.

The increased prevalence of AD in women and presence of aluminosilicates in plaque suggest two possible mechanisms which might enhance A4 amyloid production.

First, AD is virtually always a postmenopausal disease and is thus expressed in the setting of estrogen deficiency. Similarly, ovarian dysgenesis is common in DS while DS males have absent or abnormal spermatogenesis suggesting possible deficiency of gonadal steroids in both sexes.[36] Estrogen receptors are found throughout the brain, and in rodents, at least, androgens exert their action after intraneuronal aromatization to estrone and estradiol.[37] If estrogen slows the expression of degenerative disease in brain in the same manner as it inhibits demineralization in bone, that effect may be diminished in postmenopausal women and DS, but preserved in elderly men. Might it be reasonable to ask if gonadal steroids, which are modulators of gene expression, exert a protective effect by inhibiting the production of A4 amyloid?

Secondly, aluminosilicates, found in high concentration in plaque core, are ubiquitous in the environment and are potent catalysts of hydrolysis and synthesis of peptide bonds. Do these substances accelerate posttranslational conversion of A4 precursor to A4 monomer?[28]

These proposals are entirely hypothetical, but as such may form a basis for future investigations.

The Nucleus Basalis of Mynert, Neurotransmission and the Cholinergic Hypothesis

The link between cholinergic neurotransmission and memory and the discovery of a profound deficiency of choline-acetyl transferase (CAT) in AD brains has driven another strategy of research which conceptualizes AD as a cholinergic deficiency disease.

Major cholinergic input to the cortex originates from the substantia inominata, a region in the basal forebrain where magnocellular cholinergic neurons are concentrated in the nucleus basalis of Mynert (NBM) and adjacent structures. These cholinergic cells project widely to the cortex and with particular intensity to the hippocampal-amygdaloid complex and parietal association areas (Figure 1). Pharmacologic studies link this cholinergic system to learning and memory. Cholinergic manipulation in both animals and man with antimuscarinic (anticholinergic) and cholinergic agents respectively inhibits and enhances memory function.[38]

The NBM undergoes severe cell loss in some AD patients combined with a dramatic reduction in CAT activity in the cortex to 20% of age matched controls.[39] Coupled with presence of CAT in early plaque and the preservation of post-synaptic m 1 muscarinic cholinergic receptors in cortical neurons, these findings suggest a causal relationship between the degeneration of NBM cholinergic neurons and the development of Alzheimer's disease.[40,41]

The cholinergic deficiency of AD prompted a large number of drug trials aimed at replacing, substituting, or preserving neurotransmitter with agents such lecithin, bethanecol, and cholinesterase inhibitors, particularly physostigmine and tetrahydroaminoacridine (THA) with generally disappointing results. A single report by Summers et al which suggests a favorable response to THA has been widely criticized on methodologic grounds.[42,43] A large National Institute of Aging multicenter THA trial is now underway.

These unsuccessful drug trials parallel the emergence of additional information which places the cholinergic deficiency of AD in broader perspective.

While cholinergic deficiency is undeniable in AD it is not unique. Decreases also occur in norepinephrine, somatostatin, substance P, GABA, and possibly serotonin.[1,44-46] Some AD patients, particularly those with the presenile form of this illness show severe degeneration of the locus ceruleus.[20] A cortical dopamine deficiency may also occur associated with degeneration of dopaminergic neurons in the A 10 ventral tegmental area and their cortical projections despite preservation of the nigrostriatal system.[47]

Cell loss in the NBM does not correlate well with densities of plaques and tangles nor with the severity of the dementia, and in some cases the NBM is little damaged. Further, NBM degeneration occurs in other disorders including Parkinson's disease where it may be unaccompanied by cortical plaques and tangles.[38,48] Finally, the NBM has not been shown to project to the prepiriform cortex which may show severe AD pathology.[49] This structure receives input from the olfactory bulbs and projects extensively to the amygdala and hippocampus.

In sum, these data coupled with the discovery of A4 amyloid in specific cortical structures suggest that degeneration of the NBM is probably not a primary event in AD, but in fact may be a secondary response to a process beginning in cortex. One possible mechanism is the loss of a trophic factor produced by cortical cells which maintains the subcortical nuclei. These complexities of Alzheimer's disease cast a shadow of uncertainty on cholinergic agents as rational therapy, although the probable heterogeneity of AD still justifies their experimental use.

The Other Dementias

The typical AD syndrome serves as a valuable point of reference in the evaluation of confusional states. For example, a dementia heralded by a personality change, cognitive slowing, apathy, or neurologic signs, particularly in the absence of a prominent memory deficit is probably not AD. Moreover, a patient's confusion may not signify dementia, but delirium, a more acute state marked by impaired attention and an altered (usually depressed) level of consciousness. The distinction between dementia and delirium can be critical to therapeutic decisions since the treatment of delirum induced by drug intoxications, alcohol withdrawal, hypercapnea, meningitis, and other insults can be life saving. Once delirium has been excluded in a confused patient with symptoms atypical of AD, other diagnostic possibilities begin to surface. Here we will touch on several of these: vascular or multi-infarct dementia

(MID), normal pressure hydrocephalus, vitamin B_{12} deficiency, and hypothyroidism.

Hachinski has defined clinical criteria for MID which include a history of stroke, transient ischemic attack, hypertension, and stepwise deterioration.[50] Although multiple cerebral infarcts are undoubtedly the explanation for dementias in some patients, in life the diagnosis of dementia due to vascular disease is problematic.[51] Hachinski's criteria, although widely embraced, lack adequate clinicopathological support.[50,52] Moreover, multiple infarcts in the basal ganglia and thalamus identified at autopsy are often unassociated with dementia. The same applies to the vascular changes of subcortical ischemia identified by periventricular hypodensities on CT scan and at autopsy since these changes occur in both demented and normal elderly subjects.[53,54] The concurrence of cerebral infarcts or subcortical vascular disease and dementia does not prove causality.

Although MID may be a difficult clinical diagnosis the concept has therapeutic utility since therapies are generally benign or indicated for concurrent conditions. Patients treated with the rheologic agent pentoxyfilline (Trental) improve modestly but significantly.[55 (also J. Blass, personal communication)] In addition, control of hypertension, heart failure, and reduction of risk for embolic events in patients with transient ischemic attacks may improve cognitive performance.

Normal pressure hydrocephalus (NPH), the second commonly considered entity, distinguishes itself from AD by presenting as a disorder of gait and urinary incontinence. The dementia, if it develops at all, usually appears later and is marked by psychomotor retardation and passivity. CT is generally sufficient to make the diagnosis and cerebroventricular shunting often effective.[56] The gait apraxia, incontinence, dementia triad is not unique to NPH and its occurence in other disorders involving the frontal lobes and periventricular white matter including MID, and midline frontal tumor may account for some confusion in the diagnosis of NPH and the inconstant benefit of shunting.[57,58]

Finally, some dementias are commonly sought but rarely found. The practice of measuring serum vitamin B_{12} and thyroxine as part of a dementia workup reflects this habit although in both B_{12} and thyroid deficiency states, dementia is rarely the sole clinical feature. For B_{12} deficiency such cases have been described in the older literature, are relatively acute, and run a fluctuating course over days to months.[59] The author was unable to find a single convincing report of isolated thyroprivic dementia and suggests that the practice of screening for these common deficiencies of late life is more likely to identify a coexisting illness than to explain symptoms of intellectual failure.

Treatment: Have We Anything to Offer?

The absence of a definitive treatment for cognitive failure should not dissuade us from caring for the patient whose emotional and physical comfort need not depend on a failing intellectual capacity. A safe environment, regular routine, and a supportive, caring family make a major difference to a cognitively impaired person. Often the suffering of family members exceeds that of the patient and the mere acknowledgement of their pain by physicians and other health professionals can be of enormous benefit. Families face very difficult financial, practical, and emotionally distressing decisions as a demented member slips into ever greater incapacity. Support for families through AD groups, adult day care centers, respite care, and home care services makes this burden a bit easier.

From a pharmacological viewpoint, certain drugs, particularly those with anticholinergic effects, beta blockers, and others which further compromise a confused patient should be withdrawn. Depression, anxiety, delusional or psychotic thinking, and sleep disturbances often respond to pharmacotherapy. Small doses of thioridazine or haloperidol may settle and agitated patient primarily disturbed by psychotic symptoms and hallucinations although both drugs commonly induce adverse reactions. If restlessness derives from anxiety a short acting benzodiazepine such as lorazepam or oxazepam is often a better choice.[60]

Conclusions

The coalescence of major avenues of research in the dementias, particularly Alzheimer's disease, have produced important advances and crystalized directions for future investigations. In parallel with these advances is the rapid growth of organizations such as the Alzheimer's Disease and Related Disorders Association which have directed public attention to one of the major epidemics of our time. Common awareness of AD makes a familiar term of a once obscure disease. No cure is at hand for AD, and prevention is elusive, but our understanding of the neuropathic processes associated with this illness are expanding rapidly and successful therapy will surely come with time.

ADDENDUM

Three recent reports contradict the earlier finding of b amyloid gene duplication in Alzheimer's disease. Two rather than three copies of the b amyloid gene have been identified in DNA derived from leukocytes, fibroblasts, and brain of both normal and AD patients, while three copies of the gene were again found in Down's syndrome.[33,61-63] Should these observations be confirmed, then disturbances of gene regulation rather than gene duplication become a more likely mechanism for excess amyloid production. The connections between excess b amyloid accumulation, the genetics of Alzheimer's disease and Down's syndrome will require further clarification.

REFERENCES

1. Katzman R: Alzheimer's disease. *N Engl J Med* 1986;314:964-973.
2. Molsa PK, Marttila RJ, Rinne UK: Epidemiology of dementia in a Finnish population. *Acta Neurol Scandinav* 1982;65:541-552.
3. Rorsman B, Hagnell O, Lanke J: Prevalence and incidence of senile and multi-infarct dementia in the Lundby study: A comparison between the time periods 1947-1957 and 1957-1972. *Neuropsychobiology* 1986;15:122-129.
4. Schoenberg BS, Anderson DW, Haerer AF: Severe dementia, prevalence and clinical features in a biracial US population. *Arch Neurol* 1985;42:740-743.
5. Sayetta RB: Rates of senile dementia-Alzheimer's type in the Baltimore longitudinal study. *J Chron Dis* 1986;39:271-286.

6. Hulette CM, Walford RL: HLA and complement studies in Alzheimer's disease. *Bull Clin Neurosci* 1985;50:32-35.

7. Schoenberg BS: Epidemiology of Alzheimer's disease and other dementing illnesses. *J Chron Dis* 1986;39:1095-1104.

8. Treves T, Korczyn AD, Zilber N, et al: Presenile dementia in Israel. *Arch Neurol* 1986;43:26-29.

9. Liston EH: The clinical phenomenology of presenile dementia; a critical review of the literature. *J Nervous and Mental Disease* 1979;167:329-336.

10. Heston LL, Morris ML: Family studies of Alzheimer's dementia: results and prospects. *Can J Neurol Sci* 1986;13:432-434.

11. Cutler NR, Heston LL, Davies P, Haxby JV, Schapiro MB: Alzheimer's disease and Down's syndrome: new insights. *Ann Int Med* 1985;103:566-578.

12. Heston LL, Mastri AR, Anderson VE, White J: Dementia of the Alzheimer's type. Clinical genetics, natural history, and associated conditions. *Arch Gen Psych* 1981;38:1085-1090.

13. Heyman A, Wilkinson WE, Stafford JA, et al: Alzheimer's disease: a study of the epidemiological aspects. *Ann Neurol* 1984;15:335-341.

14. Larson EB, Reifler BV, Sumi SM, et al: Diagnostic tests in the evaluation of dementia. A prospective study of 200 elderly outpatients. *Arch Intern Med* 1986;146:1917-1922.

15. Pogan S, Williams RS: Alzheimer's disease presenting as slowly progressive aphasia. *Rhode Is Med J* 1984;67:181-185.

16. Mayeux R, Stern Y, Spanton S: Heterogeneity in dementia of the Alzheimer type: evidence of subgroups. *Neurology* 1985; 35:453-461.

17. Hyman BT, Van Hoesen GW, Damasio AR, Barnes CL: Alzheimer's disease: cell specific pathology isolates hippocampal formation. *Science* 1984;225:1168-1170.

18. Ball MJ, Hachinski V, Fox A, et al: A new definition of Alzheimer's disease: a hippocampal dementia. *Lancet* Jan 5 1985:14-16.

19. Terry R, Katzman R: Senile dementia of the Alzheimer's type: defining a disease. In: Katzman R, Terry R, eds. *Neurology of Aging.* Philadelphia: FA Davis 1983:51-84.

20. Bondareff W, Mountjoy CQ, Roth M: Loss of neurons of origin of the adrenergic projection to cerebral cortex (nucleus locus ceruleus) in senile dementia. *Neurology* 1982;32:164-168.

21. Curcio CA, Kemper T: Nucleus raphe dorsalis in dementia of Alzheimer type: neurofibrillary changes and neuronal packing density. *J Neuropathol Exp Neurol* 1984;43:359-368.

22. Dayan AD, Lewis PD: The central nervous system-neuropathology of aging. In Brocklehurst JC, ed. *Textbook of Geriatric Medicine and Gerontology.* London: Churchill Livingstone 1985:268-293.

23. Gajdusek DC: Hypothesis: interference with axonal transport of neurofilament as a common pathogenetic mechanism in certain diseases of the central nervous system. *N Engl J Med* 1985;312:714-719.

24. Masters CL, Beyreuther K: Neuronal origin of cerebral amyloidogenic proteins: their role in Alzheimer's disease and unconventional diseases of the nervous system. In: *Ciba Foundation Symposium.* Selective neuronal death. Chichester, Wiley 1987:49-64.

25. Grundke-Iqbal I, Iqbal K, Quinlan M, et al: Microtubule-associated protein tau. *J Biol Chem* 1986;261:6084-6089.

26. Eikelenboom P, Stam FC: Immunoglobulins and complement factors in senile plaques, an immunoperoxidase study. *Acta Neuropathol* (Berl) 1982;57:239-242.

27. Abraham CR, Selkoe DJ, Potter H: Partial characterization of cloned cDNA identified by antibodies to Alzheimer's disease amyloid (abstr). *Neurology* 1987;37(sppl 1):330.

28. Roberts E: Alzheimer's disease may begin in the nose and may be caused by aluminosilicates. *Neurobiol Aging* 1986;7:561-567.

29. Candy JM, Klinowski J, Perry RH, et al: Alminosilicates and senile plaque formation in Alzheimer's disease. *Lancet* 1986;1:354-357.

30. Goldbarger D, Lerman MI, McBride OW, et al: Characterization and chromosomal localization of a cDNA encoding brain amyloid of Alzheimer's disease. *Science* 1987;235:877-880.

31. Tanzi R, Gusella JF, Watkins PC, et al: Amyloid b protein gene: cDNA, mRNA distribution, and genetic linkage near the Alzheimer locus. *Science* 1987;235:880-884.

32. St George-Hyslop PH, Tanzi RE, Polinsky RJ, et al: The genetic defect causing familial Alzheimer's disease maps on chromosone 21. *Science* 1987;235:885-890.

33. Delbar JM, Goldbarger D, Lamour Y, et al: b amyloid gene duplication in Alzheimer's disease and karyotypically normal Down syndrome. *Science* 1987;235:1390-1392.

34. Kang J, Lemaire HG, Unterbeck A, et al: The precursor of Alzheimer's disease amyloid A4 protein resembles a cell-surface receptor. *Nature* 1987;325:733-736.

35. Selkoe DJ, Bell DS, Podlinsny MB, et al: Conservation of brain amyloid proteins in aged mammals and humans with Alzheimer's disease. *Science* 1987;235:873-877.

36. Benda CE: *Down's Syndrome: Mongolism and its Management.* New York, Grune and Stratton 1969:183-190.

37. Toran-Allerand CD: Gonadal hormones and brain development: implications for the genesis of sexual differentation. *Ann NY Acad Sci* 1984;435:101-111.

38. Harrison PJ: Pathogenesis of Alzheimer's disease-beyond the cholinergic hypothesis: discussion paper. *J Royal Soc Med* 1986;79:347-352.

39. McGeer PL, McGeer EG, Suzuki J, et al: Aging, Alzheimer's disease, and the cholinergic system of the basal forebrain. *Neurology* 1984;34:741-745.

40. Kitt CA, Price DL, Struble RG, et al: Evidence for cholinergic neurites in senile plaques. *Science* 1984;226:1443-1445.

41. Mash DC, Flynn DD, Potter LT: Loss of m2 muscarine receptors in the cerebral cortex in Alzheimer's disease and experimental cholinergic denervation. *Science* 1985;228:1115-1117.

42. Summers WK, Majovski LV, Marsh GM, et al: Oral tetrahydroaminoacridine in long-term treatment of senile dementia, Alzheimer's type. *N Engl J Med* 1986;315:1241-1245.

43. Correspondence: Oral tetrahydroaminoacridine in the treatment of senile dementia, Alzheimer's type. *N Engl J Med* 1987;316:1603-1605.

44. Francis PT, Palmer AM, Sims NR, et al: Neurochemical studies of early-onset Alzheimer's disease. *N Engl Med* 1985;313:7-11.

45. Hardy J, Cowburn R, Barton A, et al: A disorder of cortical GABAergic innervation in Alzheimer's disease. *Neurosci Lett* 1987; 73:192-196.

46. Volicer L, Langlais PJ, Matson WR, et al: Serotoninergic system in dementia of the Alzheimer type. *Arch Neurol* 1985;42:1158-1161.

47. Mann DM, Yates PO, Marchyniuk B: Dopaminergic neurotransmitter systems in Alzheimer's disease and in Down's syndrome at middle age. *J Neurol Neurosurg and Psychiatr* 1987;50:341-344.

48. Plotkin DA, Jarvik LF: Cholinergic dysfunction in Alzheimer disease: cause or effect? In van Ree JM, Matthysse S, eds. *Progress in Brain Research,* Vol 65, 1986, Elsevier Science Publishers BV.

49. Reyes PF, Golden GT, Fagel PL, et al: The prepiriform cortex in dementia of the Alzheimer type. *Arch Neurol* 1987;44:644-645.

50. Liston EH, La Rue A: Clinical differentiation of primary degenerative and multi-infarct dementia: a critical review of the evidence. Part 1: clinical studies. *Biol Psychiatr* 1983;18:1451-1465.

51. Kase CS: Multi-infarct dementia, a real entity? *JAGS* 1986;34:482-484.

52. Liston EH, La Rue A: Clinical differentiation of primary degenerative and multi-infarct dementia: a critical review of the evidence. Part II: pathological studies. *Biol Psychiatr* 1983;18:1467-1484.

53. Huang K, Wu L, Luo Y: Binswager's disease: progressive subcortical encephalopathy or multi-infarct dementia? *Can J Neurol Sci* 1985;12:88-94.

54. George AE, de Leon MJ, Gentes CI, et al: Leukoencephalopathy in normal and pathologic aging: 1. CT of brain lucencies. *Amer J Neuroradiol* 1986;7:561-566.

55. Ghose K: Oxpentifylline in dementia: a controlled study. *Arch Gerontol Geriatr* 1987;6:19-26.

56. Fisher CM: Hydrocephalus as a cause of disturbances of gait in the elderly. *Neurology* 1982;32:1358-1363.

57. Kotsoris H, Barclay LL, Kheyfets S, et al: Urinary and gait disturbances as markers for early multi-infarct dementia. *Stroke* 1987;18:138-141.

58. Meyer JS, Barron DW: Apraxia of gait: a clinicophysiological study. *Brain* 1960;83:261-284.

59. Strachan RW, Henderson JG: Psychiatric syndromes due to avitaminosis B12 with normal blood and marrow. *Quart J Med* 1969;34:303-317.

60. Risse SC, Barnes R: Pharmacologic treatment of agitation associated with dementia. *JAGS* 1986;34:368-376.

61. St George-Hyslop PH, Tanzi RE, Polinsky RJ, et al: Absence of duplication of chromosome 21 genes in familial and sporadic Alzheimer's disease. *Science* 1987;238:664-666.

62. Tanzi RE, Bird ED, Latt SA, Neve RL: The amyloid b protein gene is not duplicated in brains from patients with Alzheimer's disease. *Science* 1987;238:666-669.

63. Podlisny MB, Lee G, Selkoe DJ: Gene dosage of the amyloid b precursor protein in Alzheimer's disease. *Science* 1987;238:669-671.

A Problem of Age

The change that is taking place in age groups in the nation's population is of great social significance. Modern methods of disease control and prevention have increased the average length of life of the American people to exceed 65 years according to statistics compiled by the Metropolitan Insurance Company. The political significance of such change will be seen when individuals over sixty actually hold the balance of voting power. Some time ago Mark Sullivan stated that by 1965 some 40,000,000 people in our nation will have to support 116,000,000. In considering this statement, Dr. Edward L. Bortz, president of the American Medical Association, makes this analysis: "Certain other data are important. For discussion purposes one may divide the population into three groups – the young, the old, and those of working age. The present population of the nation is around 140,000,000. Twenty-five years from now it will be approximately 160,000,000. While this is not a spectacular increase in the total population, it is expected that the number of elderly folks will reach approximately 20,000,000. On the other hand, with a decline in the birth rate, if such continues, in 25 years from now, those under 20 will be somewhat over 60,000,000. This would leave, if one deducts those over 65 and those under 20, approximately 80,000,000 who will have to support the entire population. But if half of this solid group is made up of housewives and others who aren't wage-earners, then probably 40,000,000 workers will support a total of 160,000,000. The social and cultural changes inherent in such a transformation of the population age groups will be reflected in broad developments for the security of those individuals who are reaching the upper age brackets."

Social security for people over 60 years of age is already a major problem but in its consideration it is essential that the thinking include factors other than those of financial aspect. It is of equal importance for this enlarging consumer group that the productive capacity of the individual should be considered. "This is the crux of the aging problem," says the writer just quoted, "to find useful employment for the elderly to give their later years significance and to maintain them as contributing members of the body politic." Professor Ralph Barton Perry of Harvard states that it is high time for an Age Movement as well as a Youth Movement in our social economy.

The question arises naturally, when is a man old? The inflexible rules of retirement now existent in many of our universities and industrial organizations should be surveyed with a view to the establishment of some other system than that based on calendar maturity. It is interesting to consider what the world might have lost by the application of such rules to the creative genius of Titian, Michael Angelo, Franklin, Victor Hugo and Tolstoy, and in our own time to Edison, Toscanini, Cordell Hull, Stimson, and Justice Holmes, to mention a few from a list which could be continued a hundred-fold.

More than anything else today the world needs the counsel of men with mature minds, men with long experience in dealing with the perplexities of mankind.

– Editorial from the *Connecticut State Medical Journal*, December 1947. Stanley B. Weld was probably the writer, although the editorial is unsigned.

INQUIRE TODAY.

**You will be surprised
as to what is available
to you on a local basis.**

FOUNDED IN 1792

**ENDORSED BY
THE CONNECTICUT STATE MEDICAL SOCIETY**

— OFFERING —

- Disability Income Insurance
- Term Life Insurance
- Office Overhead Insurance

— FEATURING —

- Hospital, Surgical and
  Major Medical Insurance
  [A Viable Alternative]

ayr

AYR INSURANCE AGENCY

105 SANFORD STREET HAMDEN, CT 06514 288-4302

A Message from the Medicare Carrier

GERALD I. BLANK, M.D.

The second of these articles in *Connecticut Medicine* must properly concern itself with the pricing of procedures. After the way claims are handled the next important element in any insurance program is the way the claims are paid.

In order to provide consistency of payments a system for coding procedures must be established. This is accomplished using the HCPCS coding system. This system uses the "Physician's Current Procedural Terminology, Fourth Edition" (CPT-4) as the first line or "level" of codes. The second level of codes is a group of codes established by HCFA in order to cover services not included in the CPT-4. Unfortunately, because of the rapid changes in medicine and the difficulty in coding complex procedures, some local codes must be added to include new or different services delivered. An attempt has been made to keep this at a minimum, again to provide consistency. This third level of codes is meant primarily for codes used locally; if a procedure becomes generally used it usually moves to one of the more universal coding systems and may be eliminated from the last or local level.

The importance of these coding procedures cannot be overestimated in the discussion of pricing: all pricing is based on the assigned code. Therefore if an incorrect code has been assigned, the price for the procedure must necessarily be incorrect. It follows then, in order to reduce the possibility of error, it would be wise for you, the physician, to provide the code on which the payment of the service will be based. Your pricing profile is also based on these codes.

In determining the amount allowed for any specific service, three charges are considered: the customary charge, the prevailing charge, and the actual charge. The lowest of these charges will be the one actually paid.

The last of these charges, the actual charge, is the simplest of the three. This is the charge written on the claim form or bill for this service to this patient. The other two charges are statistically derived. None have been made up by Medicare or by the carrier; they are derived from the actual charge data of practicing physicians.

To derive the customary charge a list is made of every charge that physician has made to a medicare patient for that service, or service code. The list is ordered from the lowest to the highest charge and the median is located. That means, of course, that half of the charges will fall below and half are above the line. The median charge becomes the customary charge. The prevailing charge is different and is based on the 75th percentile. All of the charges made for that service in that locality and by that specialty are listed in ascending order. Then a line is drawn so that 75% of all of these charges fall above the line. That charge becomes the prevailing charge, and is *higher* than that charged by 75% of peers for that service. Since 1975 the prevailing charge has been adjusted by the Medicare Economic Index (MEI). Currently, the cumulative index is 112.8%, meaning that the prevailing charges are about 2.128 times what they were in 1975.

In order to simplify this explanation of the pricing system, I have not included the details for special situations or circumstances. This is merely the overall scheme by which the average claim for most of the providers has its price established. For greater detail I refer you to the Medicare-B Provider Handbook & HCPCS Coding Manual.

GERALD I. BLANK, M.D., Associate Medical Director, Medical Department, Casualty and Group Division, Travelers Insurance Company, Hartford, CT.

How More Than 3000 Doctors Have Eased The Pain Of Managing A Practice.

If your practice is like a lot of others, you often spend more time on office problems than on the health problems of your patients.

Our one easy-to-use, fully-integrated computer system can take care of billing, provide financial updates, help you market your practice. And give you more time to do what you went to medical school for.

"We've found that Medic saves us many hours of paperwork every week. A couple of hours of work is down to 15 minutes."
Jeanine Mielke, office manager, Hahn, Hoard & Taub, M.D., P.A., Boca Raton, Florida

This urology practice uses Medic Computer Systems to electronically transmit many Medicare claims every day. A job that once took a large part of the business day is now done in minutes. And that's only one of the ways that Medic saves time on paperwork.

"It's helped our cash flow tremendously."
Mike Griga, general manager of Mayfield Neurological Institute, Cincinnati, Ohio

Changing the billing system from once a month to once a week is just one way Medic has improved the bottom line of the nation's largest neurosurgery group.

"Any time we've had a problem, Medic has been immediately responsive. They bend over backwards to suit their customers. It's the best money we have ever spent."
Wynne Vaughan, office manager, Capital Pediatric and Adolescent Center, P.A., Raleigh, North Carolina

We'll do whatever it takes to keep your system working. Day or night. We have a toll-free STAT line to handle questions and problems. And there's a STAT PLUS line from our support center to your system for software updates and diagnoses.

"Our practice has doubled and we have not had to add additional billing personnel. Medic has been able to handle whatever we've asked of it."
Nancy Psimas, office coordinator, Portsmouth Orthopaedic Associates, Portsmouth, Virginia

The Medic system can ease the process of sending statements and reduce the number of uncollected bills. Plus, our easy-to-understand printouts help you keep better track of your financial condition.

"Medic's extensive training program for our staff made it easy to introduce the system. We recommend it highly."
Tessa Horne, administrator, Morgantown Ear, Nose & Throat Clinic, Morgantown, West Virginia

"We love the training program. And the updates they do really help," Ms. Horne said. When a practice brings in over 200 patients a day as this one does, the business office has to run smoothly. "Medic does everything we need. It's great."

So if you want to increase the efficiency, productivity and profitability of your practice, take a look at the Medic Computer System.

Over 3000 physicians in more than 800 practices throughout the U.S. are calling it a minor medical miracle.

medic
computer systems

8601 Six Forks Rd., Ste. 300, Raleigh, NC 27615
Ph. 919-847-8102. In NC Call: 1-800-822-2914
In Western US Call: 1-800-541-7717
In Eastern US Call: 1-800-334-8534

Other Offices: Orlando, Ann Arbor, Chicago, Cincinnati, Pittsburgh, Richmond, Atlanta

Paralysis and Sedation

RICHARD GANNON, PHARM.D

Patients in an intensive care unit (ICU) may become anxious, depressed, delirious or psychotic. These symptoms may stem from the patient's underlying pathology, exposure to the ICU environment or treatment with certain medications.[1,2] Whatever the etiology, these symptoms must be controlled so that patients do not harm themselves or others. Also, treatment of these symptoms facilitates patient care and is usually helpful when weaning patients from a ventilator.

The three major pharmacologic classes of medications used to alleviate these symptoms and provide adequate sedation include: benzodiazepines, narcotics, and the phenothiazines/butyrophenones. With the optimal use of these agents, alone or in combination, most patients can be sedated. Occasionally, some patients require the use of sedation plus a competitive non-polarizing neuromuscular blocking agent. The respiratory status of these patients is so tenuous that the slightest movement causes oxygen desaturation with hypoxemia. The neuromuscular blocking agents also help decrease peak airway pressures seen in the adult respiratory distress syndrome.

Benzodiazepines

If anxiety is the main symptom that patients express, then benzodiazepines are the drugs of choice. Depending on the dose used, these drugs cause sedation and amnesia (retrograde and antegrade). Since the parenteral route of administration is preferred, the choice of agents is limited to chlordiazepoxide (Librium), diazepam (Valium), lorazepam (Ativan) and midazolam (Versed).

Chlordiazepoxide/Diazepam. These are the classic agents however both have major disadvantages; poor IM bioavailability and long half-lives (24-48 hours). These parent drugs are then metabolized in the liver to pharmacologically active metabolites which also have long half-lives (24-48 hours). Even though these drugs have long half-lives, adequate sedation may not be achieved unless they are administered every 2-4 hours.

There may be a pharmacodynamic interaction between benzodiazepines and theophylline. In several case reports and one study, patients were more awake and alert after an aminophylline bolus when previously they had been sedated with diazepam.[3-6] Cimetidine significantly increases the half lives of chlordiazepoxide, diazepam and their metabolites due to the inhibition of hepatic metabolizing enzymes.[7] Patients with liver disease, i.e. elevated bilirubin, prolonged prothrombin time, will have a decreased ability to metabolize benzodiazepines and therefore may experience prolonged sedation.

When using diazepam, the usual dosing is 2.5-10mg IV every 2-4 hours prn. The rate of administration should not exceed 5mg/min. This should prevent the development of hypotension. The usual dose of chlordiazepoxide is 25-100mg IV every 2-4 hours prn. The dose is given over one minute.

Paradoxically, some patients may become agitated when given benzodiazepines. Patients at risk for this reaction are usually depressed, elderly, or have a premorbid organic brain syndrome.

Lorazepam. This is an intermediate acting benzodiazepine with a half-life of 12 hours and no pharmacologically active metabolites. It is well absorbed after an IM injection. Cimetidine does not prolong the half-life of lorazepam.[8] The tablets are also well absorbed sublingually. Currently, this is our preferred benzodiazepine for sedation. The usual dosing is 1-4mg IV every 2-4 hours prn. The maximum rate of administration should be 1mg/min. Approximately 1mg of lorazepam is equivalent to 5mg of diazepam. Some patients have required 10mg IV every hour for two weeks.[9] When such high doses are used for a week or more we usually taper the benzodiazepine over three to four days to prevent major withdrawal reactions.

Midazolam. This is a relatively new benzodiazepine with a very short half-life (3-4 hours) and only one weakly active metabolite.[10] Midazolam is unique because as an injection it is very aqueous soluble (pH 3) while once in the systemic circulation (pH 7.4) it becomes very lipid soluble. Midazolam is best used for short term sedation due to its high cost and short duration of action. Intermittent IV

RICHARD GANNON, PHARM.D., Critical Care Pharmacist, and Assistant Clinical Professor, University of Connecticut School of Pharmacy, Storrs, CT.

This series on Drug Information Update from the Hartford Hospital is provided by Charles H. Nightingale, Ph.D., Director of Pharmacy Services, Hartford Hospital, Hartford, CT.

Editors: Moses Sing Sum Chow, Pharm.D. and Robert A. Quercia, M.S., R.Ph.

or IM doses of 2-5mg cause sedation for 1-2 hours. In many instances a continuous IV infusion is used starting at 2-5mg/hr and increasing up to 20mg/hr.[11-13] With each increment of the continuous infusion, a bolus dose of 2-5mg IV push should also be given. The infusions are mixed as 1mg/ml D5W or NS. There is no appreciable loss of midazolam when it is mixed in a plastic (PVC) bag and run as a continuous infusion over 24 hours. (Personal communication, Roche.) Infusions should probably be tapered over 1-2 days if high doses have been used for more than a week.

Narcotics

These are the mainstays for sedation in an ICU due to efficacy, familiarity, and reversibility with naloxone.

Morphine. This is usually used in doses of 2-10mg IV every one to four hours prn. When intense sedation or analgesia is needed a continuous IV infusion of morphine is used. The IV infusion concentration is usually 1 or 2mg/ml in D5W or NS and infused at a rate to keep the patient sedated with stable vital signs. The average dose is 5-20mg/hr. A continuous infusion may help decrease the fluctuation in blood pressure which can be seen with the use of bolus dose morphine.

Prolonged sedation may be seen in patients with renal failure not because of morphine accumulation but because of active metabolite accumulation.[14,15]

Inactivity and narcotics can contribute to decreased GI motility with resultant constipation and high gastric residuals from tube feedings. If changing the narcotic sedative is not feasible then we try to decrease the morphine dose or start metoclopramide 10-20mg IV every six hours.

Agonists/Antagonists. In patients with pancreatitis, there is a concern that morphine will increase biliary tract pressures and therefore worsen the pancreatitis. Meperidine has been touted as an agent that has little effect on biliary tract pressures but this has not been demonstrated to be true.[16] The only analgesic with no effect on biliary tract pressures is the agonist-antagonist nalbuphine.[17] For the other agonist-antagonist drugs (buprenorphine, butorphanol, pentazocine) there is conflicting data but in general they do not effect the biliary tract as significantly as the pure narcotic agonists.[18]

Both butorphanol and pentazocine may increase cardiac work load by increasing blood pressure and pulmonary artery pressure.[19,20] These agents should not be used in patients with congestive heart failure, myocardial infarction, or ischemic cardiac disease. Nalbuphine decreases cardiac work load without any significant hemodynamic effects.[21] We have found that it is not a potent enough sedative, therefore, it is rarely used.

Buprenorphine is a potent narcotic agonist-antagonist which has been used infrequently as a sedative. The drug binds avidly to the mu receptor and has a long duration of action in patients with pain (up to six hours). Due to this avid binding a patient may require 1.6mg of naloxone or more to reverse any adverse effects.[18] Even though buprenorphine is an agonist-antagonist it may cause hypotension but not to the same extent as an equivalent dose of morphine. The usual dose of buprenorphine is 0.15-0.6mg IV every two to six hours prn. We use buprenorphine in patients requiring sedation/analgesia when initial doses of morphine have caused hypotension.

None of the narcotic agonists-antagonists should be given to patients who are addicted to street narcotics or using narcotics chronically. A severe withdrawal syndrome may develop.

Phenothiazines/Butyrophenones

Chlorpromazine. This is the agent of choice if the patient exhibits psychotic behavior and needs to be heavily sedated. If titrated correctly the patient will be sedated but have no decrease in respiratory rate as can be seen with the narcotics and benzodiazepines. Usually, the oral route of administration is preferred. Due to the concentration (25mg/ml) of the injection a large volume would have to be given IM to a patient on high dose therapy. Intravenous use may be associated with hypotension and a reflex tachycardia due to chlorpromazines potent alpha blocking ability. There are 25mg and 100mg suppositories available; however, we in general, do not always consider the rectal route of administration reliable for drug absorption.

Beside hypotension, one of the other worrisome side effects is lowering of the seizure threshold. The occurence of seizures is infrequent, however they occur in patients treated with the sedating phenothiazines (chlorpromazine) more commonly than when patients are treated with haloperidol.[22,23]

The dose of chlorpromazine is 25-50mg po every six hours which can be increased up to 250mg every six hours if needed. Around the clock dosing is the rule instead of prn dosing. The dose is changed every 24 hours if adequate control of symptoms is not attained. When switching to parenteral therapy, the dose is usually decreased by 50%.

Haloperidol. If parenteral antipsychotic therapy is necessary then haloperidol is the drug of choice. Haloperidol has minimal cardiovascular side effects making it an ideal medication for unstable ICU patients.[1,2,9] It does not have as sedating an effect as chlorpromazine does, however, it does have a higher incidence of extrapyramidal reactions. For the most part, IV haloperidol is used in this clinical setting. When initiating therapy, patients will get 2-10mg IV every 30 minutes until they are not agitated then a scheduled dose every four to six hours of 2-10mg.[24] Single IV doses greater then 20mg have no additional therapeutic effect. Haloperidol does not adversely effect the efficacy of low dose dopamine.[25] Occasionally patients may require dosing every one to two hours. A combination of high dose lorazepam and haloperidol has been very effective in critically ill patient.[9]

Competitive Nondepolarizing Neuromuscular Blocking Agents

There is a choice of three drugs atracurium (Tracrium), pancuronium (Pavulon), and vecuronium (Norcuron) in this pharmacological class. Each agent has its advantages and disadvantages. There are some generalizations that can be made about treatment of patients receiving paralytics.

Some type of sedation must always be given with a paralytic agent. There is no preferred agent but either narcotics or benzodiazepines are usually used. Since the blink reflex is inhibited with these agents, patients should always have some type of eye care done so that the cornea is not damaged. Special attention should be given to the prevention of decubiti formation (heels, coccyx, back of head) since the patient may move infrequently. Low dose heparin should be given if there is no contraindication.

Reversal of paralysis can be accomplished with atropine 0.5-1mg IV followed by neostigmine 0.05mg/kg IV or edrophonium 0.5mg/kg. Reversal is usually accomplished in five to thirty minutes depending on when the last dose of paralytic was given.[26,27]

Atracurium. It is unique in that its duration of action is approximately 20-30 minutes. Metabolism is by Hoffman elimination, ester hydrolysis and the liver, however, neither renal failure or liver disease will effect its duration of action.[28] Continuous IV infusions (0.6-1mg/kg/hr) have been used in patients with renal failure. When the infusion was terminated, prompt neuromuscular recovery occurred.[29] The major metabolite of atracurium is laudanosine which will accumulate in patients with renal failure. High serum levels of laudanosine (17mcg/ml) are associated with seizures in animals.[29]

The usual dose is 0.2-0.5mg/kg IV every 30-60 minutes prn. There can be hypotension and flushing secondary to histamine release with doses of 0.5mg/kg.

Pancuronium. This agent has a long duration of action (60-120 min) and its duration is prolonged even more by renal failure.[30] Tachycardia is one of its main side effects. This is due to a direct blocking effect on the acetylcholine receptors of the heart as there is little if any histamine release associated with the use of pancuronium.

Both phenytoin and carbamazepine have been shown to decrease pancuronium activity which is manifested by shorter than normal recovery times and higher than normal induction doses.[31] The interaction is thought to be pharmacodynamic rather than pharmacokinetic since there is no difference in the pancuronium half-life during phenytoin therapy. The use of verapamil may cause a resistance to reversal by neostigmine and therefore edrophonium should be tried first.[32]

The usual dose of pancuronium is 0.05-0.1mg/kg IV every one to three hours prn. Potency is maintained at controlled room temperature for six months if not refrigerated.

Vecuronium. This is our standard agent due to its lack of side effects. Its duration of action is one to two hours. A continuous IV infusion of 0.01-0.65mg/kg/hr in patients with renal failure has been associated with delayed recovery from paralysis after the infusion was stopped.[33] This is unusual as renal failure has no effect on the pharmacokinetics of vecuronium. There has been one case of recurarisation after vecuronium reversal in a patient with renal failure.[34] Hepatic cirrhosis impairs the metabolism of vecuronium and may prolong the duration of action.[30]

Vecuronium does not cause histamine release or tachycardia. Hypermagnesemia and metronidazole have been shown to prolong the duration of neuromuscular blockade with vecuronium.[33,35] As with pancuronium, edrophonium should be used instead of neostigmine to reverse paralysis in patients on verapamil.[36] Concurrent phenytoin therapy appears to cause some resistance to paralysis similar to what happens with pancuronium.[37]

High doses of gentamicin and clindamycin can prolong vecuronium induced neuromuscular blockade.[38] The usual dose of vecuronium is 0.05-0.1mg/kg IV every one to two hours prn.

REFERENCES

1. Tesar GE, Stern TA. Evaluation and treatment of agitation in the intensive care unit. *J Intensive Care Med* 1986;1:137-48.
2. Weber RJ, Oszko MA, Bolender BJ, et al. The intensive care unit syndrome: Causes, treatment, and prevention. *Drug Intell Clin Pharm* 1985;19:13-20.
3. Niemand D, Martinell S, Arvidsson S, et al. Aminophylline inhibition of diazepam sedation: Is adenosine blockade of GABA receptors the mechanism? *Lancet* 1984;1:463-64.
4. Stirt JA. Aminophylline is a diazepam antagonist. *Anesth Analg* 1981;60:767-68.
5. Arvidsson S, Niemand D, Martinell A, et al. Aminophylline reversal of diazepam sedation. *Anaesth* 1984;39:806-09.
6. Wangler MA, Kilpatrick DS. Aminophylline is an antagonist of lorazepam. *Anesth Analg* 1985;64:834-6.
7. Klotz U, Reimann IW. Elevation of steady state diazepam levels by cimetidine. *Clin Pharmacol Ther* 1981;30:513-7.
8. Greenblatt DJ, Shader RI, Abernethy DR. Current status of benzodiazepines. *New Eng J Med* 1983;309:354-58, 410-16.
9. Adams F, Fernandez F, Andersson BS. Emergency pharmacotherapy of delirium in the critically ill cancer patient. *Psychosomatics* 1986;27(Suppl 1):33-37.
10. Reves JG, Fragen RJ, Vinik R, et al. Midazolam: pharmacology and uses. *Anesthesiology* 1985;62:310-24.
11. Dirksen MSC, Vree TB, Driessen JJ. Midazolam in the ICU. *Drug Intell Clin Pharm* 1986;20:805-6 (Letter).
12. Michalk S, Moncorge C, Vichelle A, et al. Long term midazolam infusion for basal sedation in the ICU. *Anesthesiology* 1986;65(3A):A66.
13. Geller E, Halpern P, Leykin Y, et al. Midazolam infusion and benzodiazepine antagonist for sedation in the ICU. *Anesthesiology* 1986;65(3A):A65.
14. Sawe J, Odar-Cederlof I. Kinetics of morphine in patients with renal failure. *Eur J Clin Pharmacol* 1987;32:377-82.
15. Chauvin M, Sandouk P, Scherrmann JM, et al. Morphine pharmacokinetics in renal failure. *Anesthesiology* 1987;66:327-31.
16. Radnay PA, Brodman E, Mankikar D, Duncalf D. The effect of equi-analgesic doses of fentanyl, morphine, meperidine, and pentazocine on common bile duct pressure. *Anaesthesist* 1980;29:26-9.
17. McCammon RL, Stoelting RK, Madura JA. Effects of butorphanol, nalbuphine, and fentanyl on intrabiliary tract dynamics. *Anesth Analg* 1984;63:139-42.

18. Zola EM, McLeod DC. Comparative effects and analgesic efficacy of the agonist-antagonist opioids. *Drug Intell Clin Pharm* 1983;17:411-17.

19. Alderman EL, Barry WH, Graham AF, Harrison DC. Hemodynamic effects of morphine and pentazocine differ in cardiac patients. *N Engl J Med* 1972;287:623-7.

20. Popio KA, Jackson DH, Ross AM, et al. Hemodynamic and respiratory effects of morphine and butorphanol. *Clin Pharmacol Ther* 1978;23:281-7.

21. Lee G, Low RI, Amsterdam EA, et al. Hemodynamic effects of morphine and nalbuphine in acute myocardial infarction. *Clin Pharmacol Ther* 1981;29:576-81.

22. Itil TM, Soldatos C. Epileptogenic side effects of psychotropic drugs. *JAMA* 1980;244:1460-63.

23. Lipka LJ, Lathers CM. Psychoactive agents, seizure production, and sudden death in epilepsy. *J Clin Pharmacol* 1987;27:169-83.

24. Adams S, Fernandez F. Intravenous use of haloperidol. *Hospital Pharmacy* 1987;22:306-7.

25. Armstrong DK, Dasta JF, Reilley TE, Tallman RD. Effect of haloperidol on dopamine-induced increase in renal blood flow. *Drug Intell Clin Pharm* 1986;20:543-46.

26. Kopman AF. Recovery times following edrophonium and neostigmine reversal of pancuronium, atracurium, and vecuronium steady-state infusions. *Anesthesiology* 1986;65:572-78.

27. Rupp SM, McChristian JW, Miller RD, et al. Neostigmine and edrophonium antagomism of varying intensity neuromuscular blockade induced by atracurium, pancuronium, or vecuronium. *Anesthesiology* 1986;64:711-17.

28. Fisher DM, Canfell PC, Fahey MR, et al. Elimination of atracurium in humans: Contribution of Hoffman elimination and ester hydrolysis versus organ-based elimination. *Anesthesiology* 1986;41:375-81.

29. Griffiths RB, Hunter JM, Jones RS. Atracurium infusions in patients with renal failure on an ITU. *Anaesthesia* 1986;41:375-81.

30. Shanks CA. Pharmacokinetics of the nondepolarizing neuromuscular relaxants applied to calculation of bolus and infusion dosage regimens. *Anesthesiology* 1986;64:72-86.

31. Roth S, Ebrahim ZY. Resistance to pancuronium in patients receiving carbamazepine. *Anesthesiology* 1987;66:691-93.

32. Jones RM, Cashman JN, Casson WR, Broadbent MP. Verapamil potentiation of neuromuscular blockade. *Anesth Analg* 1985;64:1021-5.

33. Smith CL, Hunter JM, Jones RS. Vecuronium infusions in patients with renal failure in an ITU. *Anaesthesia* 1987;42:387-93.

34. Cody MW, Dormon FM. Recurarisation after vecuronium in a patient with renal failure. *Anaesthesia* 1987;42:993-5.

35. Sinatra RS, Philip BK, Naulty JS, Ostheimer GW. Prolonged neuromuscular blockade with vecuronium in a patient treated with magnesium sulfate. *Anesth Analg* 1985;64:1220-2.

36. VanPoorten JF, Dhasmana KM, Kuypers RSM, Erdmann W. Verapamil and reversal of vecuronium neuromuscular blockade. *Anesth Analg* 1984;63:155-7.

37. Ornstein E, Matteo RS, Schwartz AE, et al. The effect of phenytoin on the magnitude and duration of neuromuscular block following atracurium or vecuronium. *Anesthesiology* 1987;67:191-6.

38. Jedeikin R, Dolgunski E, Kaplan R, Hoffman S. Prolongation of neuromuscular blocking effect of vecuronium by antibiotics. *Anaesthesia* 1987;42:858-60.

Laboratory Medicine

10 Elizabeth Street • Derby, CT 06418 • (203) 735-3335

As a privately owned and operated medical laboratory, we are committed to providing personal, rapid and accurate services to the health care community. We service physician's offices and other laboratories in most Connecticut cities. 97% of all testing is performed on site. An in-house billing department is open six days each week.

An Independent,
Full-Service
Medical Laboratory

DIRECTOR
Philip B. Sommers, Ph.D., DABCC

ASSOCIATE DIRECTOR
Kathleen A. Bourne, Ph.D., DABMM

Laboratory Medicine is always looking for space to rent or lease in ongoing or planned medical buildings and complexes. Please call 735-3335 if you are aware of such opportunities.

A Physician's View of Managed Care

LAWRENCE KAHN, M.D.

These are times of difficult adjustment for American physicians. Their long-standing, established, and exclusive governance of the nation's health care delivery system is being challenged successfully. Commercial health care companies are preempting physicians' traditional control by instituting new methods of payment for professional and hospital services. Through such reimbursement mechanisms, these businesses claim the ability to manage health care, institute cost containment, and assure the distribution of care to the sick.

Evidence of increasing complexity, cost, and inaccessibility of health care for many people argues convincingly for change in the structure and management of health care for Americans. The commercial health care industry has recognized this and has developed health management companies that are growing rapidly in size and number.[1] It is predicted that almost all health care will come under formal management within the next decade.[2] With the Reagan administration showing interest in privately funding Medicare, private insurance may well increase its share to include government programs.[3]

Commercial health management companies base their operations on changing business relationships with physicians. This new approach can harm American health care. The manner in which commercial organizations are managing health care, not the concept of managed care itself, is at fault. The hazard is in the excessive financial vulnerability imposed on physicians and the negative influence of that vulnerability on their professional behavior.

Profession or Business?

American physicians are indoctrinated in professional principles that reflect Western concepts of the rights and responsibilities of patients and those that serve them. Modern ethicists have translated these concepts as forms of social covenants or contracts between patient and physician.[4] They emphasize physicians' essential obligations to their patients. Medicine is governed by explicit measures of competence and performance, a code of behavior, and rules of responsibility. These criteria establish physicians as those who are capable of and responsible for caring for the sick. Medicine is a profession, not a business.

The process of delivering medical care is another matter. It concerns the process of providing appropriate medical skills at affordable costs, the adequate and timely distribution of those skills according to the standards of the society it serves. Medical care includes organizational structure, cost control, and efficiency. While closely allied to the implementation of professional skills and judgment, those aspects of providing health care lend themselves readily to management skills. In some countries, health care delivery is considered a public service and is placed under public governance. In the United States, organized medicine has resolutely defended the policy of delivering medical care in the private sector. Physicians consistently have chosen to play by the rules of marketplace economics, preferring the vagaries of private entrepreneurship to government regulation.[5] Until now, health care delivery mainly has been in the hands of private, self-employed physicians. Today it remains in the private sector; however, it is rapidly being "cornered" by corporate entities and will be produced, packaged, marketed, and governed by them.

The major attraction of health management companies is their effort to contain costs. These companies offer payers more controlled delivery systems for comprehensive health care at premiums competitive with conventional indemnity health insurance. Terms and structure vary, but, in general, subscribers to these plans may obtain care at modest or no personal cost, beyond any premium contribution, as long as they are attended by physicians and go to hospitals that are under contract with the management company. Management companies control the system through contracts with payers, patients, physicians, and hospitals.

The business functions of health management companies are principally those of insurance companies plus the added undertaking of actively controlling costs. This is implemented by negotiating lower rates from physicians and hospitals and by limiting the management company's risk for provider costs. It is also accomplished by requiring authorization for a range of services including subspecialty

---

LAWRENCE KAHN, M.D., a pediatrician, is professor of pediatrics and health care research at Washington University School of Medicine, St. Louis, Missouri.

Reprinted with permission from the Fall 1987 issue of *Health Affairs*, Project HOPE, Millwood, VA.

consultation and inpatient care, as well as by assigning physicians the responsibility to monitor utilization.

Payment to physicians may be by discounted fee-for-service according to prescribed fee schedules or by fixed pricing in the form of capitation for each enrolled patient. In many plans, personal financial risk is imposed on physicians to indemnify the company's potential losses. If the plan loses money, a portion of the physicians' assigned reimbursement is forfeited. Capitation and risk are presented to the physicians as "incentives to encourage cost containment." Physicians view it as being forced to assume the underwriting role for the company.

Physicians contract with these organizations to retain established patients and to be accessible to new ones. Rewards for the companies come from the financial use of the money they hold through premium collection and profits gained from premium income less cost of health care. Their success depends on enrolling large numbers of subscribers. In a competitive marketplace, the key variable is a low premium.

For cost constraint, health management companies depend mainly on physicians, who play the major role in determining the costs for their patients' care. Since the company controls the physicians' compensation, methods of reimbursement have been established that correlate directly to the physician's performance in containing costs. Physicians are required to act as gatekeepers controlling access to health services. They are expected to stay within allocated costs by prudent use of technology, consultation, inpatient care, and their own time.

Impact of Managed Care on Quality

There are good reasons why physicians are discontented with these arrangements. Governance by commercial management companies can lower the quality of health care in several major ways. First, and of greatest concern, physicians who are required to assume financial risk based on utilization costs may be intimidated sufficiently to alter professional judgment in caring for sick people.

Second, that nonmedical persons govern physicians as gatekeepers is a pernicious intrusion on the physician/patient covenant. It erodes confidence in professional advice. Patients do question physicians' motives for outpatient versus inpatient care or for discouraging consultation.

Third, since commercial companies own the patient contracts, physicians will have to accept the imposition of lower rates of remuneration through various payment arrangements to avoid the risk of losing some of their practice. Currently, the impact of these agreements under managed care is still usually minor, since relatively small numbers of patients are involved. If all health care were to come under health management in the private sector, however, physicians would have to prepare themselves for substantial reductions in income. Primary care physicians at the lower end of the range of physician incomes would feel this most acutely. Even the simplest discount arrangement without personal financial risk would require severe economic penalty.[6] Risk arrangements are potentially even more pernicious. Young physicians entering practice may reluctantly accept this as part of the new world, but established physicians may not be in a position to adjust to this condition. Accepting income loss will be destructive for many physicians with established financial commitments. To regain income, physicians would have to work harder; however, seeing more patients in less time or in a state of fatigue can only lead to dangerously low quality of care.

Fourth, despite procedural and financial constraints, commercial health management companies take the position that they do not deny care. They limit their management only to their financial responsibility to cover patient care within the range of benefits. If the care proposed is not covered, the physician and patient are so advised. Physicians have difficulty with this arrangement because benefits are developed exclusively by the company and may not allow for the necessary flexibility for the individuals served.

Fifth, using physicians to reduce cost to operate for-profit businesses successfully could create a deeply resentful medical profession. Relationships between physician and manager could be bitter and antagonistic. Disillusionment and frustration could be reflected ultimately in a dissatisfied and poorly served public.

Finally, in the long run, the greatest risk to physicians and their patients is that physicians under commercial health management often are totally dependent on the company and have no power to affect corporate decisions. What will protect physicians, and how can they defend patients from increasingly stringent rules of performance and decreasing pay, when competition for commercial dominance becomes heated in the health care marketplace?

A serious moral and economic hazard exists when the physician serves as economic gatekeeper under certain contracts now imposed by commercial health care companies. Physicians are required to respond to two masters simultaneously. Patients seek them out as healers, while the company requires that corporate dollars be preserved. The interests of each will be in conflict when the needs or wants of one master become harmful to the other. These arrangements challenge the primacy of professional obligation.

Physicians' Role in Managed Care

In a culture in which the demand and need for health care exceeds the ability to pay for it, prudent use of health resources is a necessity. How that can be accomplished equitably and effectively remains a question. Imposing on physicians an intolerable mechanism derived from rigorous business concepts is not the answer. Physicians must contribute to the solution.

Managed health care is needed. Physicians will be gatekeepers and will have to work with health managers. Physicians, by education and training, are most qualified and must be important participants in implementing such activities. It is a role they traditionally have had no interest in filling, and their performance shows it. That must change. The medical profession must participate vigorously in accountability. What is dangerous is that the concept of physician accountability is being abused by some commercial companies. That applies to reward as well as risk. Evidence suggesting the detrimental effects of such abuse has already begun to appear.[7]

Veatch has addressed this issue eloquently in discussing the role of physicians in for-profit organizations.[8] While they are obligated to put patients' interests before their own, it is unrealistic and unreasonable to expect physicians to adhere to this concept no matter how damaging the exercise of their professional behavior will be to their own interests. Some degree of self-interest is inextricable from professional behavior.

There is a role for management organizations in the health care system, but not in the control of professional behavior. If command of health care is placed with commercial health management companies, one can expect the primary function to be to conduct their enterprise in a proper, rigorous, and disciplined fashion; business is business. But when companies focus on cost and profit rather than on delivering health care as the major objective to achieve success, then it is cost and profit alone, not from what they are derived, that determines the level of health care. Thus, the business of health management companies should be confined to the services they provide well, such as development and marketing. They should manage actuarial and underwriting services and information systems, not physicians.

Physicians must manage physicians. The transition in delivering medical care brings the new function of modern administrator to the medical profession. Physicians need to know how health management or insurance companies work. They need to understand the setting of premiums, ranges of benefits, and payment of claims. They will have to learn about the percentage of premium retention and margins of reserve. Physicians must participate in setting the limits of risk based on objective and measurable criteria of safety for patient care, limits that are, as yet, unknown. No way now exists to measure when the threat of personal financial loss or the lure of extra monetary reward becomes large enough to encroach on professional allegiance to the patient. Most of all, physicians should establish in clear terms their obligations to their patients.

What assurance is there that physicians can and will do a better job than those, however well-meaning, who are not physicians? As persons, physicians are no different from the rest of their community. However, there is a single characteristic factor for believing they will be medically responsible health care managers. In exchange for their unique authority as physicians, they have undertaken the inherent obligation to serve as the moral agent for their patients.[9] That position, the root of their profession, cannot be abandoned.

In a society that encourages pluralism, it is likely that new and improved systems will be developed that allow for a more equitable apportionment of finaicial risk on physicians, patients, and insurance carriers. To that purpose, physicians from all practice settings need to work together to protect their profession and their patients in the newly emerging environment of managed health care.

REFERENCES

1. Gabel J, Jajich-Toth C, Williams K, Loughran S, Haugh K, "The Commercial Health Insurance Industry In Transition", *Health Affairs,* Fall 1987.
2. Patricelli R, "Musings of a Blind Man: Reflections on the Health Care Industry," *Health Affairs,* Summer 1986, pp 128-134.
3. Pear R, "Reagan Seeking Fixed Medicare Fees for Doctors," *New York Times,* December 1985, 7.
4. Osmond H, "God and the Doctor," *N Engl J Med,* March 6 1980, pp 555-558. May WF, "Code, Covenant, Contract or Philanthrophy," *Hastings Center Report* 1975;5:29-38; and Pelligrino E, "Toward a Reconstruction of Medical Morality: The Primacy of the Act of Profession and the Fact of Illness," *J Med Philos* 1979;4:32-56.
5. Starr P, The Social Transformation of American Medicine, New York: Basic Books, 1982, pp 235-289.
6. How a typical primary care physician would be affected if all fees were discounted can be shown by using the example of a general pediatrician, since a recent study has revealed the economics of that practice. (American Medical Association, Council on Long-Range Planning and Development in cooperation with the American Academy of Pediatrics, "The Future of Pediatrics: Implications of the Changing Environment in Medicine," *JAMA* July 10 1987, pp 240-245.) The average annual gross income of pediatricians is $166,200 with an average overhead of $89,100, leaving a net income before taxes of $77,100. The reported average discounted fee is approximately 13 percent (Gabel et al., "The Commerical Insurance Industry in Transition"). Thus the discount applied to the gross income amounts to $21,600. The discount of $21,600 can be deducted from the net income only, since overhead cost is not reduced. Pediatricians' personal income would be $55,500, actually a 27.3 percent reduction under this arrangement.
7. Vieth FJ, "No Way to Cover Health Care Costs," *New York Times,* September 16 1985; and Brinkley J, "Plan for Cutting Hospital Costs by Rewarding Doctors Draws AMA Fire," *New York Times,* September 24 1985.
8. Veatch RM, "Ethical Dilemmas of For-Profit Enterprise in Health Care," in *The New Health Care for Profit,* ed. Gray BH, Washington, D.C.: National Academy Press, 1983, pp 125-152.
9. Pelligrino, "Toward a Reconstruction of Medical Morality."

88
NEW YORK

American College of Physicians presents 69th Annual Session March 3–6, 1988 Jacob K. Javits Convention Center

Medicine's foremost educational opportunity in the nation's most exciting city

☐ More than 200 presentations for a curriculum suited to your needs
☐ Critical findings in Molecular Biology and Clinical Medicine in six State of the Art lectures
☐ Pre-Session courses on critical care, geriatrics and infectious diseases
☐ Clinical controversies featured in 12 panel discussions
☐ Analyses that confront the social, ethical and environmental issues surrounding today's dilemmas
☐ Rewarding activities planned especially for family and guests

Request Your 1988 Scientific Program Guide

The Scientific Program Guide—with schedules, course and faculty lists, registration and housing information, and the family and guest program—enables you to plan the most valuable, personalized Session possible. Because many popular programs fill up quickly, you'll want to schedule your curriculum well in advance. Reserve your copy now by filling out and returning the request form.

YES, mail me the '88 Scientific Program Guide

PLEASE PRINT NAME ______________________
ADDRESS ______________________
____
CITY/STATE/ZIP ______________________
Telephone toll-free: (800) 523-1546 ext. 3675
In Pennsylvania: (215) 243-1200 ext. 3675
☐ ACP Member ACP# _ _ _ _ _ _
☐ Nonmember CT 11

American College of Physicians
4200 Pine Street
Philadelphia, PA 19104

Cigarette Smoking in the United States, 1986

CENTERS FOR DISEASE CONTROL

In August 1986, the Office on Smoking and Health, Center for Health Promotion and Education, CDC, initiated the Adult Use of Tobacco Survey to study the U.S. adult population's knowledge, attitudes, and practices regarding the use of tobacco. Data for this telephone survey, which was conducted primarily during the fourth quarter of 1986, were collected from a national probability sample of 13,031 respondents representing the noninstitutionalized, civilian adult population (≥ 17 years of age) in the United States. The Mitofsky-Waksberg random-digit-dialing procedure[1] was used to generate a sample of households selected for screening. From the screening data, current and former cigarette smokers* were oversampled to ensure sufficient sample size for analysis within these two subgroups.

To compensate for nonresponse, for the oversampling of current and former smokers, and for the exclusion of nontelephone households, the sample estimates were weighted (ratio-adjusted) to 1986 Current Population Survey (CPS) counts of the U.S. adult population. This adjustment controlled for sex, age, race and ethnic (Hispanic) origin, education, and region of the country. Standard errors were computed to derive the 95% confidence intervals (CI) about the sample estimates by using software based on the procedure developed by Morganstein and Hanson.[2]

The survey's overall response rate was 74.3%, which represents the product of the 85.5% response rate for the household screening sample and the 87.0% response rate for those individuals selected for an extended interview. The unadjusted racial composition of the respondents was 88.7% white, 8.4% black, and 2.9% all other racial groups combined.

Compared with the findings of other national surveys conducted during the past 40 years (Table 1), the results of the Adult Use of Tobacco Survey show the lowest prevalence of current cigarette smoking among adults ever recorded in the United States: 29.5% for men (95% CI, 28.4 to 30.6), 23.8% for women (95% CI, 22.7 to 24.9), and 26.5% overall (95% CI, 25.8 to 27.3). An estimated 24.6% of the U.S. adult population are former smokers, including 30.4% of men and 19.3% of women. The overall smoking rate by race was 28.4% for blacks (95% CI, 25.0 to 31.8) and 26.4% for whites (95% CI, 25.5 to 27.2).

The prevalence of smoking was higher among black men (32.5%) than among white men (29.3%) (Table 2). For men, the highest rate by age group was 37.1%, which occurred among men 35-44 years old. The highest age- and race-specific smoking rate occurred among black men 25-34 years old (45.9%), whereas the lowest rate occurred among black men 17-24 years old (14.3%). Among men who currently smoke, the mean number of cigarettes smoked per day was 22.8 (23.9 among white men, 14.8 among black men).

The prevalence of smoking was slightly higher among black women (25.1%) than among white women (23.7%) (Table 2). For women, the highest rates by age group were 29.2%, which occurred among women 25-34 years old, and 28.7%, which occurred among women 35-44 years old. The highest age- and race-specific smoking rate occurred among black women aged 35-44 years (36.4%), whereas the lowest rate (excluding those ≥65 years old) occurred among black women aged 17-24 years (16.0%). Among women who currently smoke, the mean number of cigarettes smoked per day was 19.1 (19.8 among white women, 14.6 among black women).

Reported by: Office on Smoking and Health, Center for Health Promotion and Education, CDC.

Editorial Note: In 1979, the first Surgeon General's Report on Health Promotion and Disease Prevention was released.[6] This report, entitled *Healthy People,* identified cigarette smoking as "the single most important preventable cause of death," responsible for an estimated 320,000 premature deaths a year in the United States and for debilitating chronic diseases in another 10 million Americans. These conclusions were based on extensive research summarized in the annual Surgeon General's reports on the health consequences of smoking, 18 of which have been issued since 1964. A year after publication of *Healthy People,* the Public Health Service established health objectives for the nation for the year 1990.[7,8]

---

* *Current cigarette smokers are defined as persons who have smoked at least 100 cigarettes in their lifetime and who are currently smoking cigarettes. Former smokers are defined as those who have smoked at least 100 cigarettes in their lifetime but who are no longer smoking.*

Morbidity and Mortality Weekly Reports, Vol. 36, No. 35 Is. 32, 29, 1987.

These objectives include 17 specific goals related to smoking and health.

The primary objective for 1990 is for the proportion of adults who smoke to be below 25%. The results of the Adult Use of Tobacco Survey show that this objective has almost been met. The overall prevalence of smoking in this survey (26.5%) is the lowest ever recorded in the United States (Table 1). In comparing these results with those of previous surveys, however, it must be noted that these surveys differ in sampling techniques, sample size, possible inclusion of proxy respondents, eligible respondent age, response rate, definition of "current regular smoker," and use of telephone versus personal interviews.[3,9] These factors may affect measurements of smoking prevalence.

Table 1

PERCENTAGE OF CURRENT CIGARETTE SMOKING AMONG ADULTS, BY YEAR AND SURVEY – UNITED STATES, 1944-1986*

			Current Cigarette Smoking (%)		
Year	*Survey†*	*Age (years)*	*Men*	*Women*	*Total*
1944	GP	≥18	48.0	36.0	**41.0**
1949	GP	≥18	54.0	33.0	**44.0**
1955	CPS	≥18	54.2	24.5	**37.6**
1964	NCSH	≥21	52.9	31.5	**40.3**
1965	NHIS	≥17	51.1	33.3	**41.7**
1966	CPS	≥17	50.0	32.3	**40.6**
	NCSH	≥21	51.9	33.7	**42.2**
1967	CPS	≥17	49.1	32.1	**40.1**
1968	CPS	≥17	47.0	31.2	**38.6**
1970	NHIS	≥17	43.5	31.1	**36.9**
	NCSH	≥21	42.3	30.5	**36.2**
1974	NHIS	≥17	42.7	31.9	**37.0**
1975	NCSH	≥21	39.3	28.9	**33.8**
1976	NHIS	≥20	41.9	32.0	**36.7**
1978	NHIS	≥17	37.5	29.6	**33.2**
1980	NHIS	≥20	38.3	29.4	**33.6**
1983	NHIS	≥20	35.7	29.4	**32.4**
1985	CPS	≥16	31.8	25.4	**28.4**
	NHIS	≥20	33.2	27.9	**30.4**
1986	OSH	≥17	29.5	23.8	**26.5**

* Sources: Office on Smoking and Health, CDC; [3] unpublished data) Gallup Poll;[4] National Center for Health Statistics, CDC.[5]

† GP = Gallup Poll; CPS = Current Population Survey (Supplement); NCSH = National Clearinghouse for Smoking and Health (Adult Use of Tobacco Survey); NHIS = National Health Interview Survey; OSH = Office on Smoking and Health (Adult Use of Tobacco Survey). NHIS data presented here are not age-adjusted.

To evaluate the potential effect of the type of interview on measurements of smoking prevalence, state-specific smoking prevalence data for persons ≥18 years old from two surveys were compared: the supplement to the 1985 CPS (a personal-interview survey) and the 1985 Behavioral Risk Factor Surveillance System (BRFSS) (a telephone survey).[10] For the 22 jurisdictions included in the BRFSS (21 states and the District of Columbia), the median difference between the data on overall smoking prevalence from the CPS and the BRFSS was +2.5 percentage points (Office on Smoking and Health, CDC, unpublished data). The exclusion of households lacking telephones appears to account for an underestimate of about one percentage point in telephone surveys (sampling bias), because persons living in households where there are no telephones have a higher smoking prevalence than those in households with telephones (National Center for Health Statistics, CDC, unpublished data). In addition, there may be a greater response bias in telephone surveys than in personal-interview surveys, because the former usually have lower response rates. Although the differences between data from the CPS and the BRFSS suggest that smoking rates may vary slightly depending on the type of interview used in a survey, data on the prevalences of various health conditions obtained by telephone and personal interviews are generally similar.[11-15]

Certain rates, such as the prevalence of smoking among all black men, young black men, and young black women, are markedly lower in the Adult Use of Tobacco Survey than the rates obtained by the National Health Interview Survey.[16] Because of the smaller sample sizes for blacks overall and for specific age groups among blacks, the prevalence figures for blacks from the Adult Use of Tobacco Survey should be interpreted with caution. These results should be compared with those of future surveys using larger sample sizes to determine the extent to which the prevalence of smoking among blacks may have declined.

Despite the uncertainty in comparing data from surveys using different methodologies, longitudinal surveys using the same methodology show a steady decline in smoking prevalence. For instance, data from the National Health Interview Surveys from 1974 to 1985 show a consistent mean annual reduction in smoking prevalence of 0.6 percentage points (Table 1). These data parallel the per capita consumption of cigarettes (for persons ≥18 years of age) in the United States, which has declined each year since 1973.[17]

Although much progress has been achieved, the results of the Adult Use of Tobacco Survey show that an estimated 46.8 million Americans (≥17 years old) still smoke cigarettes. To maintain momentum toward the goal of a smoke-free society, government agencies, private organizations, health-care providers, and others must work together to support programs and policies that encourage nonsmoking behavior. There should be an emphasis on reducing the prevalence of smoking among high-risk populations such as adolescents, minorities, blue-collar workers, and pregnant women. Smoking prevention and cessation programs should be offered in schools, worksites, health-care

Table 2

PERCENTAGE OF CURRENT CIGARETTE SMOKING AMONG ADULTS, BY AGE, SEX, AND RACE – ADULT USE OF TOBACCO SURVEY, UNITED STATES, 1986

Age (years)	*Men (%)*			*Women (%)*		
	White	*Black*	*Total**	*White*	*Black*	*Total**
17-24	26.0	14.3	**24.4**	22.7	16.0	**21.5**
25-34	32.4	45.9	**33.6**	29.1	30.9	**29.2**
35-44	37.4	36.4	**37.1**	27.6	36.4	**28.7**
45-64	30.0	35.6	**30.5**	25.2	26.7	**25.1**
≥65	16.0	26.6	**16.7**	12.4	8.3	**12.0**
Total	**29.3**	**32.5**	29.5	**23.7**	**25.1**	**23.8**

* Includes racial category "other," which includes Hispanics.

facilities, and other institutions. Public officials, state and local legislatures, employers, and insurance companies should support policies that discourage tobacco use and protect nonsmokers from exposure to environmental tobacco smoke. These policies include banning or restricting smoking in public places and worksites, prohibiting the sale of tobacco products to minors, prohibiting the distribution of free samples of tobacco products, providing reduced premiums for health and life insurance to nonsmokers, and providing third-party reimbursement for smoking-cessation programs.

REFERENCES

1. Mitofsky W, Waksberg J. Sampling methods for random digit dialing. *J Am Stat Assoc* 1978;73:40-46.
2. Morganstein DR, Hanson RH, Binzer G. Automation of sampling error computations for complex estimators. In: Proceedings of the American Statistical Association Section on Survey Research Methods. Washington, DC: American Statistical Association, 1982, pp 127-32.
3. Office on Smoking and Health. Smoking and health: a report of the Surgeon General, Rockville, Maryland: US Department of Health, Education, and Welfare, Public Health Service, 1979;DHEW publication no. (PHS)79-50066.
4. Gallup G, 3 adults in 10 smoke cigarettes despite strong deterrents. Princeton: The Gallup Poll, April 2, 1987.
5. National Center for Health Statistics, Health, United States, 1986. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, 1986:125; DHHS publication no (PHS)87-1232.
6. Public Health Service. Healthy people: the Surgeon General's report on health promotion and disease prevention. Washington, DC: US Department of Health, Education, and Welfare, Public Health Service, 1979; DHEW publication no (PHS)79-55071.
7. Public Health Service. Promoting health/preventing disease: objectives for the nation. Washington, DC: US Department of Health and Human Services, Public Health Service, 1980.
8. Public Health Service. The 1990 health objectives for the nation: a midcourse review. Washington, DC: US Department of Health and Human Services, Public Health Service, 1986.
9. Massey MM, Boyd G, Mattson M, Feinleib MR. Inventory of surveys on smoking. *Public Health Rep* 1987;102:430-8.
10. CDC. Behavioral risk-factor surveillance in selected states—1985. *MMWR* 1986;35:441-4.
11. Groves RM, Kahn RL. Surveys by telephone: a national comparison with personal interviews. New York: Academic Press, 1979.
12. Siemiatycki J. A comparison of mail, telephone, and home interview strategies for household health surveys. *Am J Public Health* 1979;69:238-45.
13. Aneshensel CS, Frerichs RR, Clark VA, Yokopenic PA. Telephone versus in-person surveys of community health status. *Am J Public Health* 1982;72:1017-21.
14. Weeks MF, Kulka RA, Lessler JT, Whitmore RW. Personal versus telephone surveys for collecting household health data at the local level. *Am J Public Health* 1983;73:1389-94.
15. National Center for Health Statistics. An experimental comparison of telephone and personal health interview surveys. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, 1987;DHHS publication no (PHS)87-1380. (Vital and health statistics; series 2; no 106).
16. Marcus AC, Crane LA. Current estimates of adult cigarette smoking by race/ethnicity. Presented at the Federal Interagency Committee on Smoking and Health, Washington, DC, March 1986.
17. Office on Smoking and Health. Smoking, tobacco, and health: a fact book. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, 1987;1:DHHS publication no (CDC)87-8397.

Revision of the CDC Surveillance Case Definition for Acquired Immunodeficiency Syndrome

Introduction

The following revised case definition for surveillance of acquired immunodeficiency syndrome (AIDS) was developed by CDC in collaboration with public health and clinical specialists. The Council of State and Territorial Epidemiologists (CSTE) has officially recommended adoption of the revised definition for national reporting of AIDS. The objectives of the revision are a) to track more effectively the severe disabling morbidity associated with infection with human immunodeficiency virus (HIV) (including HIV-1 and HIV-2); b) to simplify reporting of AIDS cases; c) to increase the sensitivity and specificity of the definition through greater diagnostic application of laboratory evidence for HIV infection; and d) to be consistent with current diagnostic practice, which in some cases includes presumptive, i.e., without confirmatory laboratory evidence, diagnosis of AIDS-indicative diseases (e.g., *Pneumocystis carinii* pneumonia, Kaposi's sarcoma).

The definition is organized into three sections that depend on the status of laboratory evidence of HIV infection (e.g., HIV antibody) (Figure 1). The major proposed changes apply to patients with laboratory evidence for HIV infection: a) inclusion of HIV encephalopathy, HIV wasting syndrome, and a broader range of specific AIDS-indicative diseases (Section II.A); b) inclusion of AIDS patients whose indicator diseases are diagnosed presumptively (Section II.B); and c) elimination of exclusions due to other causes of immunodeficiency (Section I.A).

Application of the definition for children differs from that for adults in two ways. First, multiple or recurrent serious bacterial infections and lymphoid interstitial pneumonia/pulmonary lymphoid hyperplasia are accepted as indicative of AIDS among children but not among adults. Second, for children <15 months of age whose mothers are thought to have had HIV infection during the child's perinatal period, the laboratory criteria for HIV infection are more stringent, since the presence of HIV antibody in the child is, by itself, insufficient evidence for HIV infection because of the persistence of passively acquired maternal antibodies <15 months after birth.

The new definition is effective immediately. State and local health departments are requested to apply the new definition henceforth to patients reported to them. The initiation of the actual reporting of cases that meet the new definition is targeted for September 1, 1987, when modified computer software and report forms should be in place to accommodate the changes. CSTE has recommended retrospective application of the revised definition to patients already reported to health departments. The new definition follows:

1987 Revision of Case Definition for AIDS for Surveillance Purposes

For national reporting, a case of AIDS is defined as an illness characterized by one or more of the following "indicator" diseases, depending on the status of laboratory evidence of HIV infection, as shown below.

I. Without Laboratory Evidence Regarding HIV Infection

If laboratory tests for HIV were not performed or gave inconclusive results (*See* Appendix I) and the patient had no other cause of immunodeficiency listed in Section I.A below, then any disease listed in Section I.B indicates AIDS if it was diagnosed by a definitive method (*See* Appendix II).

A. Causes of immunodeficiency that disqualify diseases as indicators of AIDS in the absence of laboratory evidence for HIV infection

1. high-dose or long-term systemic corticosteroid therapy or other immunosuppressive/cytotoxic therapy ≤ 3 months before the onset of the indicator disease
2. any of the following diseases diagnosed ≤ 3 months after diagnosis of the indicator disease: Hodgkin's disease, non-Hodgkin's lymphoma (other than primary brain lymphoma), lymphocytic leukemia, multiple myeloma, any other cancer of lymphoreticular or histiocytic tissue, or angioimmunoblastic lymphadenopathy
3. a genetic (congenital) immunodeficiency syndrome or an acquired immunodeficiency syndrome atypical of HIV infection, such as one involving hypogammaglobulinemia

B. Indicator diseases diagnosed definitively (*See* Appendix II)

1. candidiasis of the esophagus, trachea, bronchi, or lungs
2. cryptococcosis, extrapulmonary
3. cryptosporidiosis with diarrhea persisting >1 month
4. cytomegalovirus disease of an organ other than liver, spleen, or lymph nodes in a patient >1 month of age
5. herpes simplex virus infection causing a mucocutaneous ulcer that persists longer than 1 month; or bronchitis, pneumonitis, or esophagitis for any duration affecting a patient >1 month of age
6. Kaposi's sarcoma affecting a patient <60 years of age
7. lymphoma of the brain (primary) affecting a patient <60 years of age
8. lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia (LIP/PLH complex) affecting a child <13 years of age
9. *Mycobacterium avium* complex or *M. kansasii* disease, disseminated (at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)
10. *Pneumocystis carinii* pneumonia
11. progressive multifocal leukoencephalopathy
12. toxoplasmosis of the brain affecting a patient >1 month of age

II. With Laboratory Evidence for HIV Infection

Regardless of the presence of other causes of immunodeficiency (I.A), in the presence of laboratory evidence for HIV infection (*See* Appendix I), any disease listed above (I.B) or below (II.A or II.B) indicates a diagnosis of AIDS

A. Indicator diseases diagnosed definitively (*See* Appendix II)

1. bacterial infections, multiple or recurrent (any combination of at least two within a 2-year period), of the following types affecting a child <13 years of age:
   septicemia, pneumonia, meningitis, bone or joint infection, or abscess of an internal organ or body cavity (excluding otitis media or superficial skin or mucosal abscesses), caused by *Haemophilus, Streptococcus* (including pneumococcus), or other pyogenic bacteria
2. coccidioidomycosis, disseminated (at a site other than or in addition to lungs or cervical or hilar lymph nodes)
3. HIV encephalopathy (also called "HIV dementia," "AIDS dementia," or "subacute encephalitis due to HIV") (*See* Appendix II for description)
4. histoplasmosis, disseminated (at a site other than or in addition to lungs or cervical or hilar lymph nodes)
5. isosporiasis with diarrhea persisting >1 month
6. Kaposi's sarcoma at any age
7. lymphoma of the brain (primary) at any age
8. other non-Hodgkin's lymphoma of B-cell or unknown immunologic phenotype and the following histologic types:
   a. small noncleaved lymphoma (either Burkitt or non-Burkitt type) (*See* Appendix IV for equivalent terms and numeric codes used in the *International Classification of Diseases,* Ninth Revision, Clinical Modification)
   b. immunoblastic sarcoma (equivalent to any of the following, although not necessarily all in combination: immunoblastic lymphoma, large-cell lymphoma, diffuse histiocytic lymphoma, diffuse undifferentiated lymphoma, or high-grade lymphoma) (*See* Appendix IV for equivalent terms and numeric codes used in the *International Classification of Diseases,* Ninth Revision, Clinical Modification)

   Note: Lymphomas are not included here if they are of T-cell immunologic phenotype or their histologic type is not described or is described as "lymphocytic," "lymphoblastic," "small cleaved," or "plasmacytoid lymphocytic"

9. any mycobacterial disease caused by mycobacteria other than *M. tuberculosis*, disseminated (at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)
10. disease caused by *M. tuberculosis*, extrapulmonary (involving at least one site outside the lungs, regardless of whether there is concurrent pulmonary involvement)
11. *Salmonella* (nontyphoid) septicemia, recurrent
12. HIV wasting syndrome (emaciation, "slim disease") (*See* Appendix II for description)

B. Indicator diseases diagnosed presumptively (by a method other than those in Appendix II)

Note: Given the seriousness of diseases indicative of AIDS, it is generally important to diagnose them definitively, especially when therapy that would be used may have serious side effects or when definitive diagnosis is needed for eligibility for antiretroviral therapy. Nonetheless, in some situations, a patient's condition will not permit the performance of definitive tests. In other situations, accepted clinical practice may be to diagnose presumptively based on the presence of characteristic clinical and laboratory abnormalities. Guidelines for presumptive diagnoses are suggested in Appendix III.

1. candidiasis of the esophagus
2. cytomegalovirus retinitis with loss of vision
3. Kaposi's sarcoma
4. lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia (LIP/PLH complex) affecting a child <13 years of age
5. mycobacterial disease (acid-fast bacilli with species not identified by culture), disseminated (involving at least one site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)
6. *Pneumocystis carinii* pneumonia
7. toxoplasmosis of the brain affecting a patient >1 month of age

III. With Laboratory Evidence Against HIV Infection

With laboratory test results negative for HIV infection (*See* Appendix I), a diagnosis of AIDS for surveillance purposes is ruled out *unless:*

A. all the other causes of immunodeficiency listed above in Section I.A are excluded; AND
B. the patient has had either:
  1. *Pneumocystis carinii* pneumonia diagnosed by a definitive method (*See* Appendix II); OR
  2. a. any of the other diseases indicative of AIDS listed above in Section I.B diagnosed by a definitive method (*See* Appendix II); AND
     b. a T-helper/inducer (CD4) lymphocyte count <400/mm.[3]

Commentary

The surveillance of severe disease associated with HIV infection remains an essential, though not the only, indicator of the course of the HIV epidemic. The number of AIDS cases and the relative distribution of cases by demographic, geographic, and behavioral risk variables are the oldest indices of the epidemic, which began in 1981 and for which data are available retrospectively back to 1978. The original surveillance case definition, based on then-available knowledge, provided useful epidemiologic data on severe HIV disease.[1] To ensure a reasonable predictive value for underlying immunodeficiency caused by what was then an unknown agent, the indicators of AIDS in the old case definition were restricted to particular opportunistic diseases diagnosed by reliable methods in patients without specific known causes of immunodeficiency. After HIV was discovered to be the cause of AIDS, however, and highly sensitive and specific HIV-antibody tests became available, the spectrum of manifestations of HIV infection became better defined, and classification systems for HIV infection were developed.[2-5] It became apparent that some progressive, seriously disabling, and even fatal conditions (e.g., encephalopathy, wasting syndrome) affecting a substantial number of HIV-infected patients were not subject to epidemiologic surveillance, as they were not included in the AIDS case definition. For reporting purposes, the revision adds to the definition most of those severe non-infectious, non-cancerous HIV-associated conditions that are categorized in the CDC clinical classification systems for HIV infection among adults and children.[4,5]

Another limitation of the old definition was the AIDS-indicative diseases are diagnosed presumptively (i.e., without confirmation by methods required by the old definition) in 10%-15% of patients diagnosed with such diseases; thus, an appreciable proportion of AIDS cases were missed for reporting purposes.[6,7] This proportion may be increasing, which would compromise the old case definition's usefulness as a tool for monitoring trends. The revised case definition permits the reporting of these clinically diagnosed cases as long as there is laboratory evidence of HIV infection.

The effectiveness of the revision will depend on how extensively HIV-antibody tests are used. Approximately one third of AIDS patients in the United States have been from New York City and San Francisco, where, since 1985, <7% have been reported with HIV-antibody test results, compared with >60% in other areas. The impact of the revision on the reported numbers of AIDS cases will also depend on the proportion of AIDS patients in whom indicator diseases are diagnosed presumptively rather than definitively. The use of presumptive diagnostic criteria varies geographically, being more common in certain rural areas and in urban areas with many indigent AIDS patients.

To avoid confusion about what should be reported to health departments, the term "AIDS" should refer only to conditions meeting the surveillance definition. This definition is intended only to provide consistent statistical data for public health purposes. Clinicians will not rely on this definition alone to diagnose serious disease caused by HIV infection in individual patients because there may be additional information that would lead to a more accurate diagnosis. For example, patients who are not reportable under the definition because they have either a negative HIV-antibody test or, in the presence of HIV antibody, an opportunistic disease not listed in the definition as an indicator of AIDS nonetheless may be diagnosed as having serious HIV disease on consideration of other clinical or laboratory characteristics of HIV infection or a history of exposure to HIV.

Conversely, the AIDS surveillance definition may rarely misclassify other patients as having serious HIV disease if they have no HIV-antibody test but have an AIDS-indicative disease with a background incidence unrelated to HIV infection, such as cryptococcal meningitis.

The diagnostic criteria accepted by the AIDS surveillance case definition should not be interpreted as the standard of good medical practice. Presumptive diagnoses are accepted in the definition because not to count them would be to ignore substantial morbidity resulting from HIV infection. Likewise, the definition accepts a reactive screening test for HIV antibody without confirmation by a supplemental test because a repeatedly reactive screening test result, in combination with an indicator disease, is highly indicative of true HIV disease. For national surveillance purposes, the tiny proportion of possibly false-positive screening tests in persons with AIDS-indicative diseases is of little consequence. For the individual patient, however, a correct diagnosis is critically important. The use of supplemental tests is, therefore, strongly endorsed. An increase in the diagnostic use of HIV-antibody tests could improve both the quality of medical care and the function of the new case definition, as well as assist in providing counselling to prevent transmission of HIV.

REFERENCES

1. World Health Organization. Acquired immunodeficiency syndrome (AIDS): WHO/CDC case definition for AIDS. WHO Wkly *Epidemiol Rec* 1986;61:69-72.
2. Haverkos HW, Gottlieb MS, Killen JY, Edelman R. Classification of HTLV-III/LAV-related diseases [Letter]. *J Infect Dis* 1985;152:1095.
3. Redfield RR, Wright DC, Tramont EC. The Walter Reed staging classification of HTLV-III infection. *N Engl J Med* 1986;314:131-2.
4. CDC. Classification system for human T-lymphotropic virus type III/lymphadenopathy-associated virus infections. *MMWR* 1986;35:334-9.
5. CDC. Classification system for human immunodeficiency virus (HIV) infection in children under 13 years of age. *MMWR* 1987;36:225-30,235.
6. Hardy AM, Starcher ET, Morgan WM, et al. Review of death certificates to assess completeness of AIDS case reporting. *Pub Hlth Rep* 1987;102(4):386-91.
7. Starcher ET. Biel JK, Rivera-Castano R, Day JM, Hopkins SG, Miller JW. The impact of presumptively diagnosed opportunistic infections and cancers on national reporting of AIDS [Abstract]. Washington, DC : III International Conferenence on AIDS, June 1-5, 1987.

Physicians –

THE JOHNSON AMBULATORY SURGERY CENTER

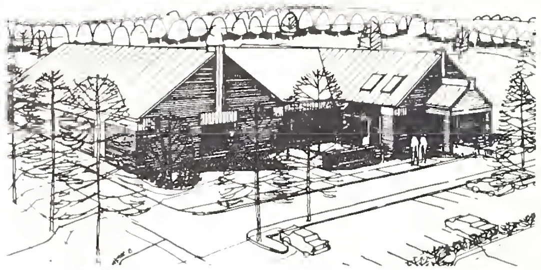
In Enfield is Connecticut's newest freestanding, hospital-affiliated surgical center.

We Provide:

- Individualized orientation tours for you and your office staff.
- Assistance in completing your application for staff privileges.
- Simplified booking.
- Toll free phone lines from Hartford, Rockville, Manchester, Windsor and Windsor Locks.
- Telephone dictation link for dictating H & P prior to surgery.

Our Modern Facility Features:

- Two Operating Rooms; One Cysto/Treatment Room.
- A full-service laboratory for pre-op testing.
- Argon/Krypton Laser (Biophysic Médical) for Ophthalmology.
- CO2 Laser (Sharplan) compatible w/General Surgical, ENT, GYN and Podiatry applications.
- Wild microscope for eye and hand applications.
- Zeiss microscope for ENT and GYN applications.
- Full Acufex arthroscopic equipment with VCR capability.
- Karl Storz hysteroscopy and cystoscopy equipment.



- A Raytheon x-ray suite with C-arm and portable x-ray capabilities.

We Participate With All Major Health Insurance Plans: Commercial Insurance Carriers; Group Plans; and HMO's.

The Johnson Ambulatory Surgery Center is one of the best equipped and most technologically advanced surgical centers in the Northeast.

For more information, or to arrange a tour of our facility, call Anthony T. Valente, Vice President in Charge of Operations, (203) 749-8365 (collect) during business hours.

JOHNSON AMBULATORY SURGERY CENTER
146 Hazard Avenue, P.O. Box 909
Enfield, CT 06082, (203) 749-8365

View from the Hill

JAMES E. BRYAN

The Washington Post's lead story in its August 3, 1987, business section was headlined "Health Costs Put Coalition in Turmoil—Employers Complain, Seek Vote on Leadership." The following day, the *Post* business section featured a story entitled "Business Leaders to Control Health Group—Strip Voting Rights from Doctors, Hospitals and Labor." Thus is the evidence that mixing commercialism with medicine can cause a serious imbalance that threatens the quality of health care while striving for cost efficiency.

The National Capital Area Health Care Coalition (NCAHCC) has become the symbolic leader of a growing national effort to "bring together all parties in the health care system on an equal basis" in evaluating the quality, adequacy and costs of health care services in the capital area. The Washington Coalition was organized in 1983 with the strong endorsement of the American Medical Association, the District of Columbia Medical Society, and major national and local hospital, nursing, health insurance, labor, industry and business organizations. It was only one of more than 100 such bodies then being initiated in communities throughout the nation.

The promotion of local coalitions concentrating on health services and costs followed the collapse of an earlier "voluntary effort" sponsored by the AMA in tandem with the major hospital associations, and designed to demonstrate the potentiality of "voluntarism" in dealing with the seemingly intractable inflation of hospital and medical costs.

From the inception of the community health coalition, representatives of business and industry clearly and candidly concentrated on controlling the rising costs of their employee health benefit programs. Some coalitions initially solicited only employer representatives as members. They soon found it necessary, however, to involve physicians, hospitals, insurers and employees or union members. Physicians were actively encouraged by national and local medical leaders who recognized the opportunity to broaden the profession's base of popular understanding and support, and to help restrain rising medical care costs.

Six major national, nongovernmental organizations established and funded the original "umbrella" unit, known as "Coalitions for Health Care" (i.e., the AMA, the American Hospital Association, Blue Cross/Blue Shield, the Health Insurance Association of America, the AFL-CIO and the Business Round Table). Harvard professor John T. Dunlop served as national coordinator of the program.

Each component organization was pledged to "encourage and assist" its local affiliates to work with one another in activating local programs for more effective utilization review, appraising and planning optimal use of local medical facilities and technology, and engaging in other appropriate strategies to maximize cost efficiency and foster pricing discipline in local health services. At the time, Bert Seidman, AFL-CIO spokesman, observed, "In today's climate, labor is looking at coalitions in a pragmatic way." One suspects that it still is.

James Sammons, M.D., executive vice president of the AMA, expressed AMA's view that if properly structured and used, coalitions "can be the greatest asset this country has ever had to assure the proper utilization of health care resources." The AMA had encouraged the Reagan administration to junk the original professionally sponsored PSRO and Health Planning programs—both of which appeared to be far longer on hope and promise than on performance during their brief life spans. Hence, the AMA understandably felt under some obligation to produce a new cost-saving strategy.

Physicians have been professionally offended by their recent nullification as effective participants in the Washington coalition (and similar disbarment of health professionals by industrial groups is reported to be contemplated in other sections of the nation). But, quite apart from this, physicians must also deal with the new PRO program, the strictures of DRGs, and an unprecedented volume of "doctor bashing" by an administration that either does not understand (or prefers to ignore) the difference between a "sole source munitions supplier" and a learned, caring health professional.

JAMES E. BRYAN, Washington Correspondent, *American Family Physician*.

Reprinted from *American Family Physician*. Copyright 1987 by American Academy of Family Physicians.

The candid self-interest of most industrial participants in these coalitions was not universally approved or shared by business leaders. Willis Goldbeck, past director and present of the Washington Business Group on Health, characterized health coalitions as a "natural evolutionary reflection of an agreement that the health care status quo is getting worse" and as "an expression of the philosophy that dealing with things like health issues ought to be done at the local level . . . bringing all parties together." Mr. Goldbeck concluded with a significant caveat: "For the coalition to be truly successful, it has to be founded with a commitment to better health for the community, not just to a better bottom line for the individual companies that are participating."

The NCAHCC apparently does not quite see it that way. *The Washington Post* reported in its August 3, 1987, story that because several of the area's largest companies had failed through the coalition to "restrain medical costs," they "mounted a controversial drive to turn the NCAHCC into a much more aggressive tool for business interests." A main goal, they say, has been to "increase the clout of the coalition and to use that clout to bargain for lower rates with doctors and hospitals."

Of the 135 members of the coalition (each business firm member has a vote), only 79 voted – 63 for and 16 against – on the proposal to restructure the organization and create two classes of membership. One class, comprising business members only, will have voting rights. A second-class membership will be available to physicians, nurses, hospitals, insurers, labor representatives and others whose nonvoting status will confine them to an advisory role. Representative second-class members are reported to be reconsidering their continued affiliation in what Dunlop Ecker, president of the Washington Hospital Center, the city's largest private hospital, characterizes as a "basically meaningless role" resulting from an action that "would shunt the health care community off to one side."

Perhaps inevitably, this coalition has become, in the view of disaffected members, "little more than a debating society." When providers and consumer representatives as well as insurers are excluded from active participation, the coalition loses credibility, public prestige, and the capacity to affect the policies and behavior of key players in its primary functions.

Do we, perhaps rightly, infer from all this that, once again, commercialism and professionalism do not mix? Physicians, I observe, tend to be excessively deferential to business people in a society that fallaciously measures one's "success" and, inferentially, his or her worth, by the magnitude of one's holdings and reputed earnings. Business people live and work in what has become an almost limitlessly tolerant, morally neutral atmosphere. Many of them are quite uninhibited by and (in my observation) mildly scornful of the ethical scruples, intimate personal concerns and patient-directed motivations that distinguish the practice of medicine so radically from the markets of the wheelers and dealers.

Medicine, finding its course in today's society tough and tortuous enough without looking for new problems, has shown a degree of candor and humility in recent times that must earn for the profession a measure of respect such as it has not always enjoyed. Physicians should rediscover and reappraise the unique strengths of their profession: (1) Medicine is an art; (2) medicine has its own basic science and technology; (3) physicians share, without stint or reservation, medicine's cognitive and technical skills with all who submit to its training and practical disciplines; (4) society has granted exclusively to certified physicians the privileges and responsibilities of professional service, and (5) society has conferred on the profession the responsibility of training and licensing all who are pledged to practice this art and to "carry out this oath and break it not."

What other human calling or craft approaches medicine in unique expertise, exclusive language and qualifying authority, and – most vital of all – in popular trust and esteem?

Medicine enjoys a formidable, unparalleled strength in our society. Physicians should stand firm in defending the vital interest they share equally with the American people.

Preventing Death and Injury from Fires with Automatic Sprinklers and Smoke Detectors

AMA COUNCIL ON SCIENTIFIC AFFAIRS

Resolution 2 (Annual Meeting 1985), which was referred to the Board of Trustees, asked the American Medical Association to urge government officials to require all new residential and nonresidential buildings to be equipped with rapid-response automatic water sprinklers and smoke detectors and to require their installation in existing high-rise buildings within three years unless existing code requirements are more stringent. This response to the resolution is a summary of the literature up to June 1986.

According to the Federal Emergency Management Agency,[1] the incidence of fires and of fire death rates per capita in the United States is among the highest in the industrialized world. The United States is second only to Canada in number of deaths caused by fire from 1965 to 1985.[2] Fire is responsible for the third largest number of accidental deaths and injuries; it causes 20 times more deaths per year than hurricanes, tornadoes, floods, and earthquakes together.[3] From 1977 to 1983, civilian deaths averaged almost 7,000 per year. This figure is comparable to the midair crashes of two 747 jets each month.[4]

In 522,000 reported fires in 1981 involving one- and two-family residences, more than 4,000 persons were killed and 34,000 were injured, including 20,000 firemen. There was over $1.5 billion in property loss and nearly $0.5 billion of indirect expenses for temporary shelter, absence from work, and legal, medical, and funeral services.[5] Residential fires – most of which are caused by smoking, heating, cooking, and suspected arson – comprise only 25% of fires annually in the United States, but they are responsible for 76% of the deaths, 64% of the injuries, and 43% of the property loss.[6]

Statistics in 1983 for all types of fires were generally worse than in 1982; the numbers of fires, deaths, and injuries increased slightly more than 4%. The major causes of residential fires (heating and cooking) and the percentages of fire-related deaths, injuries, and dollar loss show little change from 1982 to 1983. Careless smoking caused the most fatalities (23.1% in 1983); these incidents usually occurred at night, and the smoker often had been drinking. Cooking was blamed for the largest proportion of fire injuries (15.6%), while arson accounted for the largest economic loss.[6]

In 1984, property loss from fire totaled $6.7 billion, an increase of 1.7% over 1983; this is an average loss of $6,947 per structure. The incidence of arson in 1984, on the other hand, decreased by 9.4% – to 110,500 structure fires – with a dramatic reduction (45%) in deaths associated with such fires (National Fire Protection Association, written communication, Aug. 19, 1985).

Smoke and carbon monoxide (CO), rather than heat or flame, are generally responsible for fire-related deaths. Based on data obtained in Maryland from 1972 to 1977, CO alone caused 48% of the fatalities; CO combined with other factors (e.g., the presence of hydrogen cyanide or heart disease) accounted for another 16%. Burns and heat were responsible for the remaining 36% (18% each).[2]

Residential fire risk in 1983 was shown to be greatest for individuals aged 0 to 9 years and 65 years and older. These are persons who may have to rely on others for mobility or direction in an emergency.[6]

The U.S. Fire Administration has stated that "the U.S. fire death rate is high because the number of fires is high."[2] Probably the best way to reduce the numbers of fires and fire-related deaths is to encourage widespread use of smoke detectors and sprinklers.[2]

Control Measures

Detectors

Detectors are of special benefit to sleeping persons and in fires caused by careless smoking. Undisputed evidence shows that they reduce fire death rates. Of three commonly used devices, one responds to heat, either a fixed temperature or a rate-of-rise in temperature, and the other

---

From the Council on Scientific Affairs, American Medical Association, Chicago.

Report G of the Council on Scientific Affairs, adopted by the House of Delegates of the American Medical Association at the 1986 Annual Meeting, in response to Resolution 2 at the 1985 Annual Meeting.

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all of the facts and circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and patterns of practice evolve. This report reflects the views of the scientific literature as of June 1986.

Reprint requests to Council on Scientific Affairs, American Medical Association, 535 N Dearborn St, Chicago, IL 60610 (William R. Hendee, PhD).

two sense smoke or other particulate matter in the air by ionization or photoelectric means. A comparison of the two types of smoke detectors with the heat detector determined that smoke detectors provided a greater amount of escape time—at least two minutes. The differences in response time, depending on whether the fire is flaming or smoldering, are minimal with respect to escape time and lifesaving potential.[7]

The first residential fire detectors, or heat detectors, were introduced in 1921. It was not until 1970 that the first battery-powered smoke detectors were marketed; although technologically acceptable, the devices were not affordable for the average home, based on the standards of the time.[8] Although detectors now cost $10 to $50, a sizable number of families still cannot afford them and remain unprotected.[1]

The chance of death in one- and two-family homes without smoke detectors is 2.5 times higher than those with detectors. For mobile homes, the comparable fatality rate is two to four times higher.[9] Detectors do not have as dramatic an effect on injury rates in conventional homes as they do on death rates (4.5 injuries per 100 fires with detectors vs 4.8 without). The difference in injury rates is more pronounced when detectors are installed in mobile homes, being less than one third the rate when detectors were absent. However, detectors may significantly reduce the severity of injuries when the warning is early. Unfortunately, the margin of safety provided by an early warning may cause otherwise avoidable injuries to some persons when they attempt to extinguish the fire by themselves or to rescue other victims.[1]

The number of fatalities may be related to the long delay from ignition to detection and the subsequent arrival of the fire departments; approximately 26% of the fatalities occurred when the fires were detected 20 to 40 minutes after ignition, and almost 38% occurred when fires were detected more than 40 minutes after ignition (Figure).[10] Children, the elderly, and those who cannot escape unaided appear to be a major proportion of the casualties even when they have been alerted by the alarm.[2]

Effective protection requires proper installation of an adequate number of detectors, with regular testing and maintenance thereafter. In one third of the instances in which the detectors did not function properly, particularly when they gave nuisance alarms, the cause was either improper location or mounting.[8] More common is failure to test and maintain detectors. Some way should be found to emphasize the need for regular testing and maintenance and for the replacement of older detectors; periodic public messages and inspection by the local fire department could be effective measures.[11]

Limited data indicate that smoke detectors alone could reduce the residential fire fatality rate by about 50%. If both detectors and residential sprinklers were used, the rate could be reduced as much as 73% for one- and two-family dwellings, mobile homes, and apartments. Approximately 20% to 30% of the deaths probably could not be prevented because of intimate exposure (e.g., ignited clothing), shielded fire, or rapid fire development.[9]

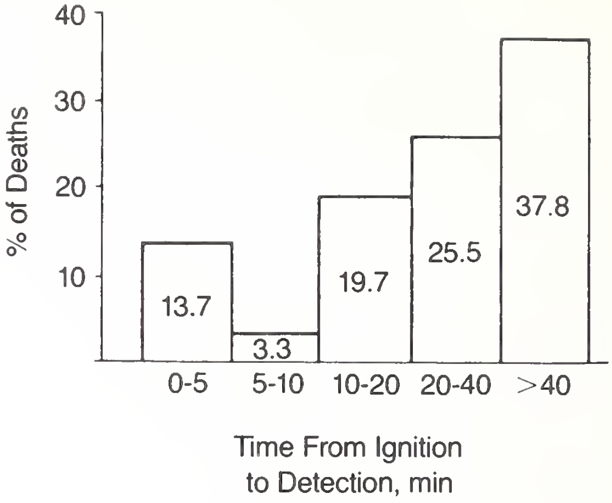


Figure 1

Percentage of deaths in residential one- and two-fatality fires by time from ignition to detection. Percentages were based on 873 deaths in 716 fires, and times were estimated by responding fire departments (reprinted with permission from Derry,[10] copyright 1979, National Fire Protection Association, Quincy, MA 02269).

Sprinklers

Automatic fire detectors are intended to give an early warning that allows occupants to escape or to defend themselves from the hazard. Automatic sprinklers, on the other hand, are meant to control or extinguish a developing fire so that occupants are better able to escape or do not need to escape.[12] Conventional water sprinkler systems have been in commercial/industrial use for more than 100 years. Accounts of their effectiveness in reducing fire losses of life and property are legion.[1]

Residential sprinkler systems were not practical until 1978, when a sprinkler head that reacted five times faster than previous ones was developed. Sprinkler heads intended for residential systems are similar in principle and appearance to those used industrially since the 1800s. A fusible metal link keeps the valve closed until the heat of the fire softens the link, thereby releasing a distributed fountain of water that both wets and cools the fire area. The smaller sizes and lower ceilings of residential rooms, compared with industrial/commercial spaces, confine the hot gases and cause temperatures and carbon monoxide levels to rise faster, thereby necessitating more rapidly responding sprinklers.[1] The quick-response heads now available react in as little as 35 s.[2]

Once it is properly installed and maintained, the sprinkler system has a life of about 30 years and should require little upkeep, by either the homeowner or a contractor. Occasionally, one or more heads may have to be replaced due to dust, corrosion, or careless painting.[5]

There is too little experience from which to gauge the reliability of residential sprinkler systems. However, industrial/commercial systems have a noteworthy record. It is also difficult to determine just how effective the new sprinklers may be in saving lives.[1] A series of full-scale fire tests to simulate the most common types of incidents that might cause residential deaths was conducted in 1979 and 1980. It was found that an individual could survive a fire in a room with sprinklers, because the fire would be extinguished before the concentration of combustion products became lethal.[13-15] No multiple loss of life due to fire or smoke has taken place in fully sprinklered buildings, and property loss is placed at one fifth of that for unsprinklered buildings.[2]

In 1978, a typical installation was estimated to be about 1% to 2% of the average new home price of $100,000 or about 2% to 4% of the cost of an existing home.[1] The 1980 revision of the National Fire Protection Association's (NFPA's) sprinkler systems code for one- and two-family dwellings (NFPA 13D) potentially made the home installation even more affordable. Piping now may be interconnected with other domestic plumbing and plastic pipe can be used in place of metal. Retrofitting of existing homes also has been made simpler and more economical by the acceptance of polybutylene pipe instead of metal.[5]

A number of communities have adopted building ordinances making the installation of sprinklers in new homes compulsory. Building code "trade-offs" often are used as an incentive.[16] High-rise buildings, defined by NFPA 101-1985 (Life Safety Code, pp 113, 151) as a building with six or more stories or with occupiable (*sic*) floors more than 23 m (75 ft) above the lowest level of fire department vehicle access, have a particular need for sprinkler systems. In several states, sprinklers must be installed in all new buildings above a certain height.[2]

There are still some serious obstacles that must be addressed before residential sprinkler systems become commonplace. Apart from the cost of installation, homeowners are most likely to be concerned about water damage during a fire or from accidental discharge. However, documented evidence shows that fire or smoke is far more destructive to property than the water released by the sprinklers. Also, each sprinkler head operates independently, and only those in the immediate fire area are apt to go off. Unscheduled leakage is expected to be no more frequent than from any other plumbing fixtures.[1]

Other deterrents include manufacturers' and installers' concerns about litigation over injuries, deaths, or property damage when a system malfunctions or does not provide adequate protection and spurious claims of water damage.[1]

A reduction in insurance premiums, changes in building codes to allow less expensive construction practice and/or increased building density, favorable financing, and various tax credits and tax exemptions will help to persuade the homeowner to install a sprinkler system.[5] Without such incentives, sprinkler systems cost more than 20 times as much as detectors to purchase, install, and maintain.[9] A form of tax rebate, similar to the Internal Revenue Service's Energy Tax Credit, also has been proposed.[17]

Conclusions

Fires are one of the two leading causes of accidental death in the U.S. home.

Smoke detectors can be one of the least expensive and most effective means of providing an early warning and escape from the hazard of fire as well as a means of reducing personal injury. However, detectors offer little protection to persons with impaired mobility, such as young children, the elderly, and the handicapped. Moreover, they cannot control or extinguish a developing fire and do little to reduce property loss. These functions are better performed by automatic sprinkler systems.

With improvements in technology and certain monetary concessions, i.e., reduced insurance premiums, tax credits, and more favorable financing, sprinkler systems are becoming affordable for a larger portion of the population.

Unfortunately, many people remain unprotected because they cannot afford either detectors or sprinklers.

Recommendations

The Council on Scientific Affairs recommends that the American Medical Association:

1. Cooperate in public education campaigns of federal and local governments and professional fire organizations to promote fire prevention and fire safety.
2. Encourage legislation that will require smoke detectors and will encourage rapid-response automatic sprinklers in all new residential and commercial buildings.
3. Encourage legislation that will require smoke detectors and rapid-response automatic sprinklers in all existing high-rise buildings (as defined in this report).
4. Encourage federal, state, and local taxing bodies and insurance carriers to grant appropriate monetary concessions to property owners as inducements to install automatic fire detection and suppression systems in new and existing structures.
5. Encourage manufacturers of fire detection and suppression equipment to develop and market products that are increasingly effective and less costly and thus more affordable to an even greater proportion of the U.S. population.
6. Encourage local, state, and county medical associations and medical specialty societies to cooperate with the government.

REFERENCES

1. Federal Emergency Management Agency: Report to Congress on Fire Protection Systems: Detectors, Remote Alarm Systems, and Sprinklers. US Fire Administration, National Fire Data Center, 1981.
2. Federal Emergency Management Agency: An Ounce of Prevention. US Fire Administration, 1985.
3. Rule CH: 'Fire news': Fire safety in hotel rooms. Natl Saf Health News 1985, p 42.
4. Viniello JA: Residential and quick response fire sprinklers: You need to know the difference. Sprinkler Q 1985, 52:18-24.

5. Ruegg RT, Fuller SK: A Benefit-Cost Model of Residential Fire Sprinkler Systems, publication NBSTN 1203. Gaithersburg, Md, Fire Safety Technology Division, Center for Fire Research, National Engineering Laboratory, National Bureau of Standards, 1984.
6. Federal Emergency Management Agency: Preliminary Fire Statistics for 1983. US Fire Administration, National Fire Information Council, 1983.
7. Bukowski RW: Field Investigation of Residential Smoke Detectors, publication NBSIR 76-1126. Center for Fire Research, Institute for Applied Technology, National Bureau of Standards, November 1976.
8. Hall JR Jr: A decade of detectors: Measuring the effect. Presented at the National Symposium on Sprinklers and Related Fire Protection Technology for the Future, Arlington, Va, Aug 8, 1984.
9. Budnick EK: Estimating Effectiveness of State-of-the-art Detectors and Automatic Sprinklers on Life Safety in Residential Occupancies, publication NBSIR 84-2819. US Dept of Commerce, National Bureau of Standards, National Engineering Laboratory, Center for Fire Research, January 1984.
10. Derry L: Fatal fires: How they happen, where they happen, how to stop them. Fire J 1979, 73:67-79.
11. Gancarski JL, Timoney T: Research Report on Home Smoke Detector Effectiveness. Federal Emergency Management Agency, US Fire Administration, National Fire Protection Association, 1984.
12. Gomberg A, Buchbinder B, Offensend JF: Evaluating Alternative Strategies for Reducing Residential Fire Loss: The Fire Loss Model, publication NBSIR 82-2551. US Dept of Commerce, National Bureau of Standards, National Engineering Laboratory, Center for Fire Research, 1982.
13. Cote AE: Field test and evaluation of residential sprinkler systems: Part I. Fire Technol 1983, 19(4):221-232.
14. Cote AE: Field test and evaluation of residential sprinkler systems: Part II. Fire Technol 1984, 20(1):48-58.
15. Cote AE: Field test and evaluation of residential sprinkler systems: Part III. Fire Technol 1984, 20(2):41-46.
16. Federal Emergency Management Agency: Report on 1980 Property Loss Comparison Fires: An Insurance Company Assessment of the Impact of Residential Sprinklers on Fire Loss, publication FA-53. US FIre Administration, Ad Hoc Insurance Commission on Residential Sprinklers, 1981.
17. Cote AE: Update on residential sprinkler protection. Fire J 1983, 19:1-7.

Members of the Council on Scientific Affairs are as follows: John R. Beljan, MD, Philadelphia, Vice-Chairman; George M. Bohigian, MD, St Louis; E. Harvey Estes, Jr, MD, Durham, NC; Ira R. Friedlander, MD, Chicago, Resident Representative; William R. Kennedy, MD, Minneapolis; John H. Moxley III, MD, Los Angeles, Chairman; Paul S. Salva, PhD, Lubbock, Tex, Medical Student Representative; William C. Scott, MD, Tucson; Joseph H. Skom, MD, Chicago; Richard M. Steinhilber, MD, Cleveland; Jack P. Strong, MD, New Orleans; Henry N. Wagner, Jr, MD, Baltimore; William R. Hendee, PhD, Secretary; William T. McGivney, PhD, Assistant Secretary; and Robert Wheater, MS, Primary Staff Author.

NIH Consensus Panel Issues Report

Consensus Development Conference on Neurofibromatosis

A National Institutes of Health (NIH) consensus development statement on neurofibromatosis may be obtained from the NIH Office of Medical Applications of Research.

The report was prepared by a panel of experts that considered scientific evidence presented at a Consensus Development Conference at NIH. It contains recommendations and conclusions concerning neurofibromatosis.

At NIH, consensus conferences bring together researchers, practicing physicians, representatives of public interest groups, consumers, and others to carry out scientific assessments of drugs, devices, and procedures in an effort to evaluate their safety and effectiveness.

Free, single copies of the consensus statement on neurofibromatosis are available from:

Michael J. Bernstein
Office of Medical Applications of Research
National Institutes of Health
Building 1, Room 216
Bethesda, Maryland 20892

Editorials

A New Proposal to Limit Services to the Elderly

One month after announcing a 38.5% increase in the Medicare Part B premiums, the Reagan Administration has struck again with an even more draconian plan. This latest and perhaps greatest incursion into the Medicare Program would limit the costs and services available to elderly patients and only serves to reaffirm Washington's cynical posture towards health care for our senior citizens. "The cynic," as Oscar Wilde noted, "is one who knows the price of everything but the value of nothing." This scheme would grant the federal government new power to set standards for the private practice of medicine to the obvious detriment of our elderly—those who can least tolerate rationed care.

No one is happy about increased Medicare costs, but they are a predictable and continuing fact of life in a nation where people are living longer and where our Medicare enrollees are increasing by more than one million every two years. This latest of the Administration proposals would "steer Medicare patients toward certain doctors who practice a conservative style of medicine, who have a proven track record of providing appropriate medical care without unnecessary utilization of services." The Administration should understand that we are not talking about carburetor adjustments or oil filters here; we are talking about elderly lives and their quality of life. In promoting this ill-advised program, no official has said anything about the elderly patient and the adverse effect that the proposal could have on his or her health.

What government bureaucrat has the competence to determine what medical tests are necessary or unnecessary for a senior citizen, or what care is appropriate or inappropriate? Legislators recognized the importance of physicians determining what was best for the patient when they wrote the Medicare Act of 1965, and the language adopted did not authorize Federal employees to "exercise any supervision or control over the practice of medicine." Sadly, as Medicare patients and physicians know too well, that promise and many others have been broken over the past 22 years.

As Representative Hal Daub (R-Neb) recently asserted, "If in order to stay alive, a Medicare beneficiary must visit his doctor more often, undergo more tests, and be the subject of new and more elaborate procedures all because modern medicine has more to offer him—then so be it." One thing is certain: the bureaucrats cut no corners when it comes to their own care!

Besides jeopardizing the quality of health care rendered to our elderly, this scheme also could greatly exacerbate an already critical situation with regard to skyrocketing malpractice insurance costs for physicians. One can just imagine the escalation of lawsuits resulting against those physicians who practice a "conservative style of medicine" when a patient's condition worsened or was misdiagnosed because of the absence of a certain diagnostic test. Physicians, increasingly vulnerable, would be laid bare by such a proposal. Will insurers balk at covering physicians on the so-called "approved list?"

Hopefully, the Congress and the American public will reject this scheme for what it is—a shallow and insensitive effort to slash costs on health care for our elderly and to further substitute government judgment for that of physicians in the practice of medicine. Winston Churchill once said that "Americans can always be counted on to do the right thing, but only after they have exhausted all of the other possibilities." With this misguided proposal, we're getting closer, Sir Winston!

Timothy B. Norbeck
Executive Director,
Connecticut State Medical Society

Multiple Sclerosis: Enigmas of Etiology and Management

The article by Wahlquist and Booss in this issue of *Connecticut Medicine*[1] comes at a time when there is a great deal of interest in multiple sclerosis (MS). The disease presents in a number of different patterns, the two most common of which are classic remitting-relapsing and chronic progressive forms of the disease. The etiology is multi-factorial and involves T-lymphocytes and macrophages which infiltrate and lead to degradation of the myelin sheath. It is frequently said that MS is an autoimmune disorder possibly triggered by a viral infection. Evidently different population groups have varying propensities for developing the disease and certain HLA types have been associated with MS. Various epidemiologic factors that have been considered in the etiology of MS include latitude (greater distance from the equator being associated with higher prevalence of MS), particularly among whites residing between 40° and 60° latitude in both hemispheres. Populations felt to be particularly

---

Editorials are expressions of personal opinion and do not necessarily reflect the policies of CSMS.

Connecticut Medicine does not hold itself responsible for statements made by any contributor.

susceptible to MS live in areas such as Scotland (Shetland and Orkney Islands). It seems not to occur in some groups such as Eskimos, Bantus, and Gypsies. On the other hand, certain areas such as the Faeroe Islands, particularly after World War II, seem to have had epidemics of MS, suggesting the possible role of infection.[2]

A variety of viruses have been implicated as having a potential etiologic relationship with MS. Generally these have been felt to act as triggers for the disease, and the suspects have included measles, canine-distemper virus, pox viruses, slow viruses, and even retro-viruses.[2,3,4] More recently even Lyme Disease has been considered for an etiologic role with MS.[5,6]

Meanwhile additional studies of potential treatment modalities have been under way. It appears that cyclophosphamide and lymph node radiation have shown beneficial effects, whereas gamma-interferon seems to make the disease worse. Recently Bornstein and others have reported on a pilot trial of copolymer I, "Cop I" in the treatment of exacerbating-remitting multiple sclerosis. Cop I was originally synthesized in Israel and was intended to simulate myelin basic protein. Although trials with myelin basic protein, itself, apparently failed to produce any beneficial effects in the treatment of MS, Cop I appeared to produce beneficial effects in individuals who had relatively less clinical involvement when treatment was begun. There are fewer exacerbations of the disease in the Cop I treated group, particularly in the second year.[7] Additional studies are underway to evaluate the effectiveness of Cop I in the chronic-progressive form of MS.[8]

Severe bladder dysfunction occurs in most patients with MS, and the evaluation and treatment of the urinary bladder in MS has been thoroughly reviewed elsewhere.[9] A variety of means have been recommended for managing the MS patient with severe bladder involvement and recurrent urinary tract infections. These have included chronic urinary suppression with antibiotics, indwelling-Foley catheters, and straight catheterizations. However, fever, bacteremia, and death are serious potential drawbacks to chronic use of a Foley catheter.[10] Antibiotics have failed to reduce the rate of infection, longterm, and have selected for antibiotic resistant organisms after catheterization for more than four days.[11]

Lapides et al[12] have championed the use of intermittent self-catheterization. A variety of papers have appeared all of which tend to suggest that straight self-catheterization can be associated with the achievement of negative urine cultures and a decreasing need for antibacterial medication. The point is made that even very small residual volumes are associated with infection and possibly renal deterioration and that draining the bladder effectively with intermittent straight catheterization could be a means of decreasing recurrent febrile episodes and sepsis.

The present study by Wahlquist and Booss[1] seems to suggest that febrile urinary tract infections are less common when prospective culturing is done. However, apparently only four of the nine patients followed were actually treated during the study. This was because the decision for treatment of colonized patients was a matter of judgment on the part of different individuals caring for the patients. Treated or not, however, febrile urinary tract infections were less common during the period of observation, when prospective culturing was done, than in the preceding year when febrile urinary tract infections and hospitalizations had been noted in the same group of patients. In the end, it seems uncertain as to what had the most signficant effect in preventing febrile urinary tract infections. It is possible that the regular straight catheterizations were as important as the actual use of antibiotics. Nevertheless, the study calls attention to the value of careful prospective observation and monitoring of these chronically and generally severely affected individuals with MS. It seems likely that future studies of colonization and symptomatic infection could benefit from the kind of approach used by Wahlquist and Booss. Although the current concensus, according to Kunin,[16] is that asymptomatic bacteriuria need not be treated unless it has been shown to predict the occurrence of symptomatic episodes in individual patients, chronic antimicrobial suppressive therapy can be effective when recurrences are frequent and closely spaced. The study by Wahlquist and Booss seems to suggest that in the relatively few instances observed, long-term prophylaxis was not effective. Possibly the three patients observed with *Pseudomonas aeruginosa* and the patient with *Providencia stuarti* should have been managed by attempting eradication with a shorter, more intensive course of antimicrobial therapy. Questions about the proper role of chronic suppressive therapy probably should be undertaken in the future among patients such as these who are managed with periodic straight catheterization and prospective microbiologic monitoring.

It remains an open question as to whether effective treatment can be developed for MS in the absence of a clear understanding of the etiologic mechanism operative in the disease. But there is no question that good, practical clinical studies at the bedside can go far toward clarifying the best approach for comfortable and safe management of unfortunate individuals who are already burdened with the chronic stages of this enigmatic disease.

David P. Johnson, M.D.

Middletown, CT

REFERENCES

1. Wahlquist GI, Booss J: Bacteriuria in Multiple Sclerosis: Documentation by Prospective Cultures. *Connecticut Medicine* 1987.
2. Rivera VM: Multiple Sclerosis: Is The Mystery Beginning to Unfold. *Postgrad Med* 1986;79(8):217-232.
3. Sayetta RB: Theories of The Etiology of Multiple Sclerosis: A Critical Review. *J Clin Lab Immunol* 1986;21(2):55-70.
4. Larner AJ: Aetiological Role of Viruses in Multiple Sclerosis: A Review. *J Royal Soc Med* 1986;79(7):412-7.
5. Kurtz SK: Relapsing Fever/Lyme Disease: Multiple Sclerosis: *Med Hypotheses* 1986;21:335-343.
6. Gay D, Dick G: Spirochetes, Lyme Disease & Multiple Sclerosis. *Lancet* 1986;2:685.

7. Bornstein MB, et al: A Pilot Trial of Cop 1 in Exacerbating Remitting Multiple Sclerosis. *NEJM* 1987;317:408-414.
8. Weiner HL: Cop 1 Therapy for Multiple Sclerosis (editorial). *NEJM* 1987;317:442-444.
9. Blaivas JG, et al: Multiple Sclerosis Bladder: Studies and Care. *Ann NY Acad Sci* 1984;436:328-436.
10. Warren JW, et al: Fever, Bacteremia, and Death as Complications of Bacteriuria in Women with Long Term Urethral Catheters. *J Inf Dis* 1987;155:1151-1158.
11. Garibaldi RA, et al: Factors Predisposing to Bacteriuria During Indwelling Urethral Catheterization. *NEJM* 1974;291:215-219.
12. Lapides J, et al: Follow-up on Unsterile, Intermittent Self Catheterization. *J Urol* 1987;111:184-87.
13. Diokno AC, Childs SJ: Clean Intermittent Catheterization in UTI Management. *Infections in Surgery* 1985;4:185-190.
14. Kuhn HM, et al: Intermittent Catheterization as a Rehabilitation Nursing Service. *Arch Phys Med Rehabil* 1974;55:339-442.
15. Shand DG: Relation Between Residual Urine Volume and Response to Treatment of Urinary Infection. *Lancet* 1970;1:1305-1306.
16. Kunin CM: Duration of Treatment of Urinary Tract Infections. *Am J Med* 1981;71:849-854.

BOOK REVIEW

The Health Century

By Edward Shorter, M.D., New York, Doubleday, 1987. 304 pp. $21.95

Edward Shorter has accomplished a near-miracle. In 268 pages of text, he has managed to summarize most of the major biomedical advances of the last three decades, and he has done it in a literary form of such deceptive simplicity that his book can readily be understood by nonscientists. His style is more the breathless broken-field dash of the journalist than the steady, measured stride of the medical historian, but it is exactly that pumping pace that rivets the reader's attention on the most abstruse details of modern med-tech, and makes them immediate and pertinent.

The underlying theme of *The Health Century* is the miracle that the miracle-working author is describing for us: the emergence of the post-World War II United States as "The lead locomotive of medical research in the world as a result of a singular collaboration among universities, the National Insitutues of Health, and the private sector." Shorter moves back and forth between the two worlds, as do many of the researchers he describes. In doing so, he creates multi-colored images of the great effort, which has been at once high-minded and profit-minded, selfless and selfish, inspired and pragmatic, sublime and boorish. Such contradictions have always characterized what he calls "America, The Can-Do Country," in whatever challenge it has undertaken, whether social or scientific, whether democratic or diplomatic. He admits to the irony of the tripartite collaboration, which finds its ultimate origins in the American way of doing things: "The highly competitive drug companies struggling to lure away NIH's best scientists; academics in a race to clone genes and becoming in the process wealthy individuals; well-meaning lobbyists endeavoring to impose uninformed priorities on federal scientists."

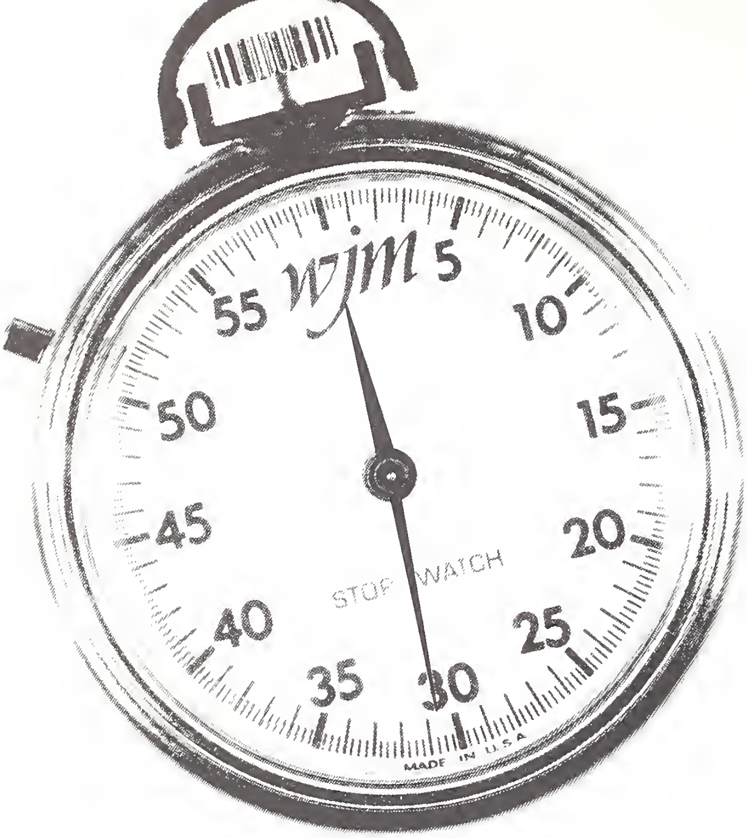
Shorter writes cinematically: he sets up his sound-stages as though he is directing a television show, which, in a manner of speaking, is exactly what he is doing—the book is meant to be a companion volume to the PBS series of the same name. The frequent repetition of such phrases as "the scene now shifts to— — " seem less annoying to the reader when placed in this context, as does the rapid-fire switching back and forth from past to present tense. The breathlessness of the narrative, the short punchy character-sketches of the *dramatis personae,* and the open-mouthed unabashed hero-worship that lies between many of Shorter's lines are easily forgiven, because of the thorough-going success of his mission, which is to explain the very latest achievements of biomedical research to a wide audience.

In this, he carries out the real miracle of his book. In covering the distance from sulfa drugs to monoclonal antibodies, from nitrogen mustard to recombinant DNA, he displays a clarity of understanding and exposition that should make him the envy of less gifted science writers. Those of us in clinical medicine can use this book as a guide to understanding what is being done by our colleagues in the laboratory. Shorter is at his best in the chapter describing the development of molecular biology and immunology, but other sections of the book are scarcely less well conceived.

The jab-and-punch style and the literary theatrics will bother many readers, but they are stylistic devices in a good cause. The book contains remarkably few errors, and none of them are whoppers. The virtual exclusion of non-Americans or of Yanks working abroad (in the section on interferon, Ion Gresser's seminal work is not mentioned, perhaps because he is an American in Paris), the absence of chapters on such an assortment of frontiers as radiotherapy, artificial organs, and diagnostic imaging, and the small amount of discussion of pre-war science are due to the NIH focus of the work. In fact, the book is actually misnamed.

But it is not misconceived. Edward Shorter has created a readable primer of American biomedical science, as it exists in 1987. Every physician should have a working knowledge of each topic discussed in his book. There is no better or more enjoyable way to cover the ground than by running alongside the author on this fascinating sprint through the laboratories and lunch rooms of America's medical research establishment.

Sherwin B. Nuland, M.D.
New Haven, CT



TIME to subscribe

Consider a few features of
The Western Journal of Medicine:

- **Epitomes of Progress** — Each month this section highlights the major advances in a different specialty with 15 or 20 brief epitomes by experts in the field.
- **Clinical Investigation** — Five major clinical research societies coordinate important new research findings, emphasizing clinical value.
- **Socioeconomics** — WJM is often the first to predict, examine and evaluate socioeconomic changes, trends.
- **Yearly Special Issue** — Each December's issue is devoted to a topic vital to physicians: clinical nutrition (1979), cost of care (1980), geriatrics (1981), occupational/environmental (1982), cross-cultural medicine (1983), personal health maintenance (1984), high-tech medicine (1985), medical informatics (1986).

Enclosed is $________ to cover ________ subscriptions.
Subscription renewal ☐ Regular subscription ☐
Foreign subscription ☐

TO: ______________________________

Street ______________________________

City/State/Zip ______________________________

Specialty ______________________________

Gift Card to read "From ______________________________"

The Western Journal of Medicine

Please mail this coupon with
enclosed payment to:

Circulation Department
P.O. Box 7602, San Francisco,
California 94120-7602

Subscriptions, 12 issues Per Year
U.S. and Canada $30 1 year,
$50 2 years

All other countries $50 1 year,
$90 2 years

The President's Page

Semi-Annual Meeting Report

Thank you Dr. Ahrens. May I welcome you all to the 1987 Semi-Annual Meeting of the Connecticut State Medical Society, and a special welcome to Dr. William S. Hotchkiss, President of the American Medical Association.

Last May, when I addressed you as your newly-installed President of your State Medical Society, my, and your, main concern was the legislation regarding Medicare Assignment. The issue of attaching it to your right to have a license to practice your profession had been resolved in your favor. The issue of mandatory *v* voluntary assignment had just been resolved.

Since that time, thanks to your efforts on the grass roots level, and the Society's efforts through its lobbyists in Hartford, the "mandatory" provision was withdrawn from the final bill—P.A. 87-356—that was passed along strictly party lines. It mattered little to our solons whether or not it violated the Supremacy Clause of the United States Constitution by taking away the federally established option, but not the "right," of physicians to charge Medicare beneficiaries more than the reimbursement level set by the US Department of Health and Human Services. That option was provided under the Federal Health Insurance for the Aged Act, popularly known as Medicare, in 1965, and reaffirmed under the Deficit Reduction Act of 1984, page 1396, which made signing a Medicare participation agreement "voluntary." The details of this bill have been forwarded to you by your State Society. If you missed them, read September's *Connecticut Medicine* where I set them forth once again.

As you know, the Bill went into effect on its signing by the governor, except for paragraph 1, which became effective 1 July, and paragraph 9, which became effective 1 October. You should all have your statements regarding participation posted in your offices by now. The contract for its implementation was only recently received by the State and it is undergoing legal scrutiny. The burden of implementing the Medical Courtesy Card program has been heavy. The cost will be high—it is budgeted for $120,000—and will come out of your pockets in the form of increased dues. You must be aware that the legislature only appropriated about $79,000 to operate the program, and, I understand, that has been used up in one salary already.

The constitutionality of the model Chapter 475 of the Massachusetts Statutes of 1985 was not determined by the US Supreme Court recently, for it did not take the appeal from the 30 March decision of the US Court of Appeals for the First Circuit. That decision of the 1st Circuit sustained the opinion of the District Court that Chapter 475 violated neither the Supremacy Clause nor the Due Process Clause of the US Constitution. The decision of the Supreme Court not to take the case only sustains the law in Massachusetts. In the meantime, the law is the law.

The Massachusetts Medical Society, in a letter dated 15 October 1987, sent to the other 49 state medical societies, as well as to the media, indicated that Massachusetts is not the place to practice medicine. I quote it as follows:

> "At its October 14, 1987, meeting, the MMS Council approved a resolution that 'the Massachusetts Medical Society considers the Commonwealth of Massachusetts an undesirable location in which to practice.' We know you have heard a great deal about the problems that physicians face in Massachusetts, and yesterday their anger, frustration, and despair resulted in this resolution. They feel that the over-regulation of medical practice in Massachusetts is driving quality health care, and the physicians who provide it, out of the state.
>
> The Council requested that we immediately share their feelings with you and with all other state medical societies. Attached is a copy of the resolution for your information.
> Sincerely,
>
> (signed) J.J. Siragusa, Jr, MD"

It is my belief that this letter has had a profound effect on the legislators of the Commonwealth. At the recent meeting of the Northeast Delegation of the AMA held in Waltham, Massachusetts, the former president, Dr. Barbara Rockett, indicated that she had indications that some legislators have doubts as to the wisdom of the legislation that they had passed regarding licensure and mandatory assignment. It seems reasonable to deduce that with the State Society coming out publicly against recommending practicing in Massachusetts, many students of medicine will choose not to go there for their training in the Boston area. Also, many patients who have thought of the Boston area as the place to go for the ultimate in medical care will not choose to do so. With prestigious institutions in the Boston area and their multibillion dollar impact on the economy being threatened at the bottom line, it may be that reconsideration of the cited legislation would be in order. It has been reported that already this year no resident physicians in the anesthesiology and orthopedics programs at Massachusetts General Hospital have chosen to stay and practice in Massachusetts.

In this week's AM NEWS, which I hope you all receive, there is an in-depth article on the defeat of the Washington state referendum that would have required mandatory assignment of all physicians. The advocates of the defeated referendum are picturing the defeat as the success of the rich, cash-laden physicians against the poor, frail, and elderly. Dr. Hotchkiss has told me that there are a number of other states where such initiatives have been defeated. But you may be assured that those forces will be back year after year to promote mandatory assignment.

It is hoped that the opportunity for legislative redress of Connecticut's P.A. 87-365 may be accomplished at the next session. However, that will depend on all of you—including your wives, children, mothers and fathers, brothers and sisters, aunts and uncles—making it your business to lobby your legislators, as those who convinced those legislators to enact P.A. 365 did, as well as any others you know. Remember, Representative Frankel told us that the legislators were responding to the organized seniors who had formed their coalitions with the trial lawyers and the gays.

In addition to our victory over the mandatory assignment forces, you were able to beat back the forces that wanted to have you use triplicate forms in prescribing controlled substances. Living contiguously with the New York border, I can say that the only thing that using the triplicate forms has done is to increase our costs, at 25 cents apiece. They have not been shown to have done anything to control the drug abuse scene.

A new program that your State Society is endorsing is that of a Group Purchasing Plan that is to be offered in conjunction with the Connecticut Hospital Association's purchasing division. Substantial savings are envisioned. You will be hearing more of this in the near future.

CMIC, your state-spawned medical liability company, has just celebrated the completion of its third year of operations, and has entered its fourth policy year. AIS's contract to operate the company through the Society's Management Company has expired and the operations will be carried on with the same personnel who have been doing it since the beginning. The same conservative and fiscally sound management will continue.

As you all know from the mailings, the State Society's HMO, MD Health Plan, has been licensed by the Insurance Commissioner, and the SEC has authorized the stock issue. It is hoped that you will maintain the same sense of unity shown in the formation of CMIC by supporting the concept of a HMO controlled by physicians for physicians.

As usual, I urge you to support COMPAC; it is the only language your legislators understand. A contribution from a PAC only allows one to talk to the secretary to see if you can get an appointment to talk to the legislator. Without it, she will not even acknowledge your existence. Please refer to page 23 of your handbook for Dr. Concannon's report.

An issue coming to the fore is that of physicians dispensing medications for profit. You may soon see a Public Broadcasting Service TV program regarding that issue. I participated in it and presented the AMA position that such dispensing is ethical if it is in the best interest of the patient. Pharmacists nationwide are lobbying vigorously and strongly to control the issue. It was pointed out to them that they have a responsibility to the public not only to control costs, but to refrain from practicing medicine.

Regarding AIDS, this continues to be the hottest issue. The media, which many feel is intimately affected by it, is continuously reporting on it in depth. They have hyped the recently issued AMA position on physician responsibility for the care of AIDs patients. The implication seems to be that denial of care is a widespread condition in the field. They have not indicated that many physicians who have little expertise in the field will refer such patients to the skilled care of experts such as the infectious disease specialists who are now available. They seem to have avoided the more serious issue of non-medical hospital (and non-hospital) personnel who are refusing to take part in the care of AIDs patients. Please refer to page 29 of your handbook regarding the issues to be presented here today.

Regarding PROs, this week's AM NEWS has a column regarding their being attacked for not applying more stringent sanctions against physicians. There are forces who seem to want their blood. Dr. Kamens, director of CPRO, has written a letter regarding the issue.

One last thing to consider. Think of the concept of championing long term care for the elderly. Take the initiative. Let the elderly know that you care—that you are *their* only real advocate.

Thank you.

James P. Orphanos, M.D.
President

Reflections on Medicine

L'Allegro

ROBERT U. MASSEY, M.D.

Large meetings of physicians and medical educators are rarely abundantly cheerful affairs; the recent meeting of the Association of American Medical Colleges was no exception. One of the speakers, not a physician, showed a slide of a down-in-the-mouth, low-spirited face surmounting a bow tie: "This is a physician, 1987 (or 1972, or 1965)," he said. We recognized ourselves!

Most of the talk during the meeting was of the declining numbers of applicants to medical school, the putative physician surplus, inadequate research support, excessive medical school dependence on patient care income, cost containment, competition, and the effect of all these vexing conditions on medical education and patient care. Of course, most speakers gravely asserted that these were all challenges, and that should mean opportunity, and that the worst of times could be turned into the best of times; a few even denied that there were problems serious enough to require elaborate solutions.

William Osler had written in his essay, "The Student Life," a farewell address to Canadian and American medical students, in 1905:

> Hilarity and good humour, a breezy cheerfulness, a 'nature sloping toward the southern side,' as Lowell has it, help enormously both in the study and the practice of medicine. To many of a sombre and sour disposition it is hard to maintain good spirits amid the trials and tribulations of the day, and yet it is an unpardonable mistake to go about among patients with a long face.

It was the economist, Uwe Reinhardt, who at the AAMC meeting was gently chiding physicians for their long faces. He said that many of his doctor friends have declared that they would never want *their* children to enter medicine. "Fine," was his answer, "then there'll be more room for mine." He went on to remind us that ours was a glorious profession, something which most of us know but rarely tell anyone about. In spite of all our complaining about the ponderous bureaucracy, unsympathetic politicians, ungrateful patients, and mean-spirited lawyers, we have rarely met a colleague who was not overjoyed when son or daughter switched from a major in history, signed up for organic chemistry, and applied to medical school.

In his recent excellent book, *The Discovery of Insulin,* Michael Bliss[1] has written a moving account of the transformation in young diabetics when insulin was first used in their treatment. These patients are described in a chapter called "Resurrection"; they had indeed returned from what would have been certain death, either from starvation or keto-acidosis, to a fully restored life. One of them, Elizabeth Hughes, daughter of Charles Evans Hughes, was 15 years old, five feet tall, and weighed 45 pounds when she first received insulin; she had already exceeded her life expectancy, thanks to the starvation diet imposed by her physician, Frederick Allen, immediately after her disease had been diagnosed in 1918. Just before Frederick Banting began giving her insulin in Toronto in August 1922, she had been on a 300-calorie diet; within five weeks she was eating 2,700 calories, her urine was almost sugar-free, and she had gained ten pounds; she continued gaining two to three pounds a week. Three months later, no longer an invalid, she returned home to Washington. Elizabeth Hughes subsequently graduated from Barnard, married, raised her three children. Almost 60 years later, after some 45,000 injections of insulin, not only was she well, but her vision was good. She died suddenly in 1981, aged 74, following a heart attack.

Hence, loathèd Melancholy,
Of cerberus and blackest Midnight born.

It takes an economist and an historian to remind us: we are privileged to serve in a glorious profession.

ROBERT U. MASSEY, M.D., Professor, Division of Humanistic Studies in Medicine, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT.

REFERENCE

1. Bliss M: *The Discovery of Insulin*, University of Chicago Press, 1982, pp 304.

RICHARD T. SWEET, M.D.

1921 - 1987

Richard T. Sweet, M.D., died suddenly on the morning of 14 September 1987 at Hartford Hospital. Born in Keesville, New York, on 8 November 1921, he was the son of the late Dr. Alfred and Catherine (Tallmadge) Sweet. Dick had three brothers, Stephan of New Haven, David of Essex, and Alfred who predeceased him; Dick's sister Catherine Winslow lives in East Hampton. The family was a central support in his early life as it would be later. Dick spoke of his parents with love and admiration: his father, an orthopedic surgeon, was remembered as a quiet, dignified man; his mother a strong intelligent woman; and of his brothers, Dick recalled them as mainstays in his life which in these early days was dedicated to athletic activity.

Dick attended Wilbraham Academy in Massachusetts. On one of his return trips on the train to Middletown he first met Jane Eaton; the Sweets and the Eatons had been family friends. After graduation from Wilbraham and a year and a half at Dartmouth, Dick enlisted in the Marines in 1941 and served as a Corporal in the South Pacific. He served until 1945 and the experience had a profound effect on his life. He frequently told combat stories, some terrifying, some humorous. Often he joked that with each retelling he became braver.

Home on leave, he returned to Middletown and his family and friends. On his visiting list, of course, was Bob Eaton, who owned a store on Main Street, and whose daughter, Jane, worked there. Dick overcame an immense shyness and asked for a date. Nine days later Jane accepted Dick's proposal and they were married 24 June 1946.

After he and Jane married, Dick returned to Dartmouth College and then studied medicine at the College of Medicine of the State University of New York, graduating in 1952. His internship was at Meadowbrook Hospital in Hemstead, New York and his orthopedic residency was at St. Charles Children's Hospital in Port Jefferson, New York and at Meadowbrook Hospital.

In 1956, the Sweets returned to Middletown. Dick joined his father's practice in orthopedics. Later the partnership expanded to include Dr. Cyril Ceulemans and Dr. Samuel Clark. In addition to his busy orthopedic surgery practice, Dick was active in the AMA, served as a councilor for the Connecticut State Medical Society and as vice-president of the Middlesex County Medical Association. He was a member of the Central Medical Association and a former chief of orthopedic surgery at Middlesex Memorial Hospital.

Dick was at once a dedicated physician and a family man in every sense of the word. He and Jane were the parents of five children: Susan Sweet Allen of Portland, Barbara Sweet Grisolini of New York State, and Holly Sweet LeDoux, Richard T. Sweet, Jr., and Jeffery E. Sweet, all of Portland. Dick's favorite times were the family gatherings which included his children, their spouses, Walter, Aurelio, Danny, and Dana, and the eight grandchildren. There he reveled in the love, good humor, and good food his family shared.

Those of us who worked with Dick Sweet daily will miss his wit, his wisdom, and his honesty. His patients will miss the talent of a great surgeon and a caring, always available healer. All of us join in the sense of loss felt by his family but we are also strengthened by our memory of this man of loving and joyful dedication.

Rita C. Sinnamon, M.D.

From the Executive Director's Office

COUNCIL MEETING

Wednesday, October 14, 1987

Attendance

Present in addition to the Chairman, Dr. G.W. Van Syckle and Vice-Chairman, Dr. M.S. Eslami were: Drs. Abbot, Ahamed, Ahrens, Beck, Bonner, Dardick, Fox, Freedman, McDonnell, O'Brien, Orphanos, Ragusa, Robbins, Rubin, Sadowski, Schwartz, Sullivan, Jr., Upham, Villa, Welch and Zlotsky.

Also present: Mr. Norbeck, Mrs. Lindquist, Mr. Brunell, Mr. Sullivan, Mr. Tomat (FCMA), Mrs. Clark (HCMA), Ms. Harney (NHCMA) and Mrs. Ganguli (President, Auxiliary).

Absent were: Drs. Bobruff, Chmieleski, Czarsty, Kamens, Petrie, Reyelt, Jr., Rose, Sousa, Wetstone, Whalen, Jr. and Zanker.

Moment of Silence – Richard Sweet, M.D.

The Council stood for a moment of silence for Richard Sweet, M.D., Councilor from Middlesex County, who died on September 14, 1987. Dr. Robbins, Associate Councilor from Middlesex County, stated that Dr. Sweet personified the image of the ideal physician. He was a great supporter of organized medicine and answered every call of his patients, day or night. He will be sorely missed by both his patients and colleagues.

Reports From Physicians Serving on State and Federal Agencies

Dr. Sultan Ahamed reported on an AMPAC meeting which he attended in Washington, D.C. He reported that it was a very interesting meeting and it would be worthwhile for all physicians to avail themselves of the course in politics which is given by the AMA. It was reported that physicians must continue their interest in the political process and grass roots participation in political activities should be increased. An increase in grass roots participation can be achieved by membership in the COMPAC program and recruiting physicians to run for political office. It was VOTED that staff investigate the practicality of the AMA putting on a political education course in Connecticut.

Dr. Ahamed showed a video tape urging that medicine take an aggresive role as patient advocates. It was VOTED to show that tape at the House of Delegates meeting.

Report of the President

Dr. Orphanos reported that CSMS has received the contract from the Department of Aging concerning the implementation of the voluntary Courtesy Card Program and it has been submitted to legal counsel for review and it appears that some refinements will have to be made in the contract. It is anticipated that some of the objectional features of this program can be eliminated in the legislative session.

At the last meeting of the Council, Dr. Orphanos asked for suggestions for inclusion in the Democratic or Republican national platforms. Since none were forthcoming, it was suggested that Dr. Orphanos present his own thoughts on issues which he believed to be of importance. He further reported that the Group Purchasing Plan, which the Council endorsed, may go into effect on or about November 1.

Report of the Executive Director

Tim Norbeck reported on his participation this past week at three senior citizen conferences. He spoke on the Medical Courtesy Card Program and long-term nursing home care for the elderly.

In conjunction with the legislative issue of mandatory assignment, Mr. Norbeck apprised the Council of developments on the referendum to be voted upon in the State of Washington on November 3. The referendum, also known as Initiative #92, asks the public: "Shall it be a violation of the Consumer Protection Act that physicians charge their Medicare patients more than the 'reasonable' fee allowed by Medicare?" As he mentioned, the CSMS had made a major effort in the year to point out that the so-called "reasonable" fee was considerably below a physician's normal charge.

Mr. Norbeck also discussed the CSMS Statewide Group Purchasing Program which is expected to save CSMS member physicians substantial amounts in their purchases of supplies and equipment. More details will be available in November and mailed out to the membership, but it is anticipated that Connecticut physicians should be able to save at least the equivalent of CSMS dues.

M.D. Health Plan Update

Dr. George Bonner, Treasurer of M.D. Health Plan, in the absence of Dr. William Whalen, reported that M.D. Health Plan is now being marketed and also renewed efforts are being made to recruit additional physicians into the program and that the stock sale has been extended to February 6. He further reported that new legal counsel has been retained for the plan. Dr. Van Syckle requested physician input in the evaluation of marketing efforts and urged each physician to try to get others to join on a peer to peer campaign.

Report on CMMI and CMIC Activities

In accordance with Council action of 3/21/85 that prior to each House of Delegates meeting, there should be a discussion and report on CMMI and CMIC activities, Dr. Orphanos, President of CMMI, reported as follows:

1. That at the beginning of its fourth year of operation, on October 1, 1987, CMIC has 2,271 policy holders, and that claims-made policies were the only type issued this year.

2. CMIC's total assets as of October 13, 1987 were 59.8 million, up from 24 million in 1986. In the past year the staff has increased to 27 employees and additional office space has also been acquired bringing total square feet now being used to approximately 7,500.

3. Some of the services to policyholders during the past year were: Risk Management Seminars, Tort Reform Seminars, initiation of a Premium Loan Program, introduction of an Office Insurance Program, establishment of innovative premium discounts for physicians, publication of a quarterly newsletter, "Issues & Commentary," and a self-study course on "The Physician-Patient Relationship."

4. On October 1, 1987, CMIC operations were assumed by CMMI and operational personnel of American Insurance Services became employees of CMMI. The complete transition should be completed by October 31, 1987.

Fiscal Subcommittee

Review of 1988 Budget

Dr. McDonnell, Treasurer, presented the budget for 1988, as prepared by the Fiscal Subcommittee and gave a summary on the budget changes.

Following discussion of the entire budget the following actions were taken:

VOTED that the CSMS membership dues for 1988 be set at $300.00.

VOTED that the 1988 Budget be approved by the Council and transmitted to the House of Delegates on November 19, 1988, with the Council's recommendation that the dues structure and budget be approved by the House of Delegates.

Designation of "M.D." on Physician License

It was VOTED to authorize the President to communicate with Mr. Stephen A. Harriman of the Bureau of Health System Regulation, pursuing the subject of the "M.D." designation after a physician's name. It was further VOTED that the CSMS lobbyist be notified of our interest in this matter and obtain their recommendation regarding potential legislation concerning this subject.

Report From Committee on Program of Scientific Assembly

At the last meeting of the Council, a discussion ensued concerning the attendance at the scientific program and the question arose as to whether or not the scientific program should be continued. The question was referred to the Program Committee for study and report. A meeting of the Program Committee was held on September 22 and the following recommendation was submitted: "That the Council consider changing the format of the second day to include a late morning meeting of the specialty sections, lunch with one speaker following lunch, and then the convening of other scientific specialty sections following the speaker." It was also suggested that this new format be tried for at least one to two years and then evaluated as to its overall effect. By reducing the number of speakers, they would then be able to increase the honorarium for the only speaker and in this way be able to attract well known national figures to our meeting. It was VOTED to approve the report of the committee and the new format will go into effect for the 1988 annual meeting.

It was also VOTED that staff investigate the feasibility of holding a one day meeting with the House of Delegates and scientific programs running concurrently.

Physician Listing in the Yellow Pages

It was VOTED to approve a recommendation of the Fairfield County Medical Association that the CSMS Committee on Ethical and Judicial Affairs be charged to establish dialogue with the publishers of the SNET telephone directories, to encourage them to put an appropriate disclaimer in each directory stating that listings, according to specialty, do not necessarily indicate board certification. It was also noted that whatever statement was developed by the committee should adhere to legal restrictions and medical ethics.

Report on the Ad Hoc Committee on Membership

Dr. Jerome Freedman submitted a report on the subject committee outlining the course of action that is being undertaken by the committee. The main proposals are to encourage unified membership in the county and state societies; peer to peer recruitment, etc. The report was received as information.

Seat Belts

Dr. Kenneth Dardick reported on the activities of the Safety Belt Coalition and Safety Belt laws in the state. He stated that usage in Connecticut is at the highest level as anywhere in the country. Over 80-83% usage on interstate highways and 60-70% everywhere else surveyed, such as in the cities and county roads. The Coalition is targeting two more groups and part of this operation will involve interface with the medical community. It is stated that teenagers have the lowest utilization and it is proposed to contact pediatricians and family practitioners to work with teenagers in their community. Also, some local police have not been adhering to safety belt usage, and emergency room physicians and others who deal with police will be contacted to get some interaction on a one on one basis. Chiefs of Police are also being contacted. Dr. Dardick expressed his thanks to CSMS and Council for their support. The report was received as information.

Worker's Compensation Program

Dr. John Sullivan, Chairman of the CSMS Committee on Insurance, reported that the committee met with representatives of the Dodson Insurance Group and discussed a proposal for a Society sponsored workers' compensation program. It was VOTED to approve the Insurance Committee's request for Council's permission to offer to members of the Society a workers' compensation insurance program which has an advance discount of 15% plus dividend savings paid annually which have ranged from 10-50% of premiums. The dividend savings are generally returned to the Society to be distributed as a service to the participating physicians. A promotion allowance of 2-3% on the earned premium at the end of each policy year will be provided to CSMS.

CSMS IPA/M.D. Health Plan

It was VOTED that CSMS develop a letter that could be mailed to the membership encouraging their full participation in the IPA and M.D. Health Plan over the signature of Dr. Orphanos.

Section on Neurology

It was VOTED to reinstate the Section on Neurology as an official section of CSMS and to recommend similar action by the House of Delegates. The section lost its accreditation with CSMS in 1976 because of inactivity. The Section has remained intact, including its bylaws.

Life Members

It was VOTED to receive as information the following list of Life Members effective 1/1/87:

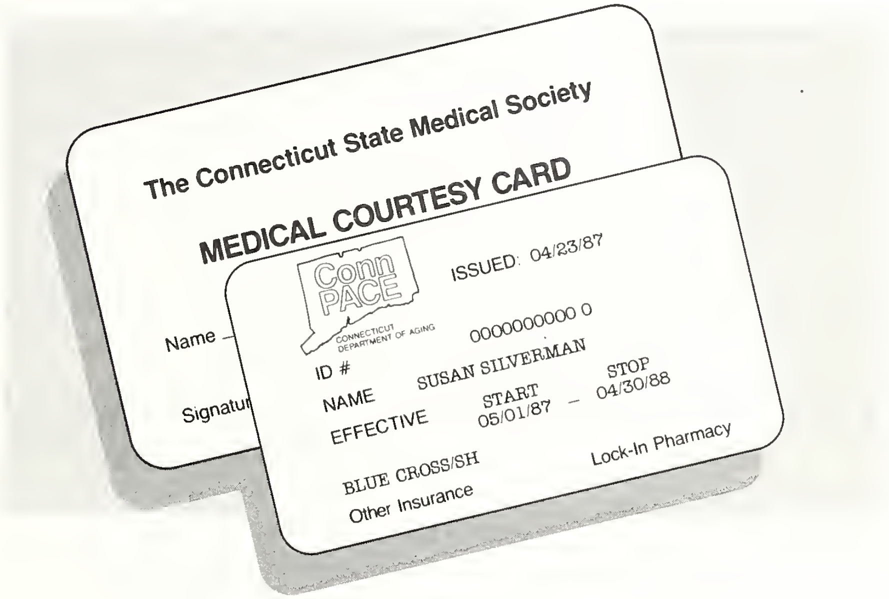
Salvatore R. Carrabba, M.D., Bloomfield, CT (H)
Walter P. Kosar, M.D., Hartford, CT (H)
Benjamin D. Thaw, M.D., Hartford, CT (H)

Date of Next Meeting

The next meeting of the Council will be held on Thursday, December 17, 1987.

N.B.: *The foregoing is a summary of the proceedings and actions of the Council on October 14, 1987. Detailed minutes of the meetings are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.*

ConnPACE Cards Are Valid for Medical Courtesy Card Program



The Connecticut State Medical Society
MEDICAL COURTESY CARD
Name
Signatu

ConnPACE
CONNECTICUT DEPARTMENT OF AGING
ISSUED: 04/23/87
ID # 0000000000 0
NAME SUSAN SILVERMAN
EFFECTIVE START 05/01/87 – STOP 04/30/88
BLUE CROSS/SH
Other Insurance
Lock-In Pharmacy

Under one provision of the Medicare compromise passed by the Connecticut General Assembly, ConnPACE cards should now be accepted by CSMS Medical Courtesy Card program enrolled physicians. A senior holding a valid ConnPACE card is NOT required to obtain a separate Medical Courtesy Card. Please notify your office staff.

NOTICE

ProMed Systems, Inc. is proud to announce two significant developments which will benefit Connecticut medical providers:

1. ProMed's electronic claim submission network has been expanded to include the following insurance carriers:
    - Blue Cross & Blue Shield of Connecticut
    - Medicare (Part B - Travelers)
    - Constitution Health Network
2. ProMed has a new product, the Electronic Claim Submission System. Key features and benefits of the system are:
    - Available on a lease basis for $175.00 per month which includes all required hardware and software ($75.00 per month for software only).
    - Patient demographic information is retained by the system and need only be entered once.
    - System provides electronic claim submission to the above carriers and will print HCFA 1500 claim forms where that is the requirement.

Connecticut's Source for Practice Management and Claim Submission Systems.

Call Bob Seekamp, Director of Marketing at 1-800-922-3385 for additional information.

ProMed
SYSTEMS INCORPORATED

221 Whitney Avenue
New Haven, CT 06511

A subsidiary of:

Blue Cross
Blue Shield
of Connecticut

COMMITTEE SERVICE QUESTIONNAIRE
Connecticut State Medical Society

Early in 1988 the Councilors from the eight constituent county medical associations assume the responsibility of selecting members of the Society to participate in the various activities of the Society listed below. In making these selections it is of importance to choose physicians who are not only willing and able to serve but also who are known to have an interest in the work of the group to which they may be assigned. In order to enable this office to furnish the Councilors with a compilation of those who desire to be considered for committee service, all members are asked to indicate by number in order of preference (not more than three) opposite your choice in the questionnaire below and return same to the:

Executive Director's Office
160 St. Ronan Street
New Haven, CT 06511

Your cooperation will be appreciated.

Medical Education

☐ Committee on Continuing Medical Education
☐ Committee on Program of the Scientific Assembly

Medical Economics

☐ Committee on Insurance

Professional Relations

☐ Committee on Ethical and Judicial Affairs

Public Affairs and Communications

☐ Editorial Committee on "Connecticut Medicine"
☐ Committee on Legislation
☐ Committee on Public Affairs

Scientific and Socio-Environmental Medicine

☐ Committee on Emergency Medical Services
☐ Cancer Coordinating Committee
☐ Committee on Physician Health
☐ Committee on Maternal Morbidity and Mortality
☐ Committee on Medical Aspects of Sports
☐ Committee on Mental Health
☐ Committee on Organ and Tissue Transfers
☐ Committee to Study Perinatal Morbidity and Mortality
☐ Committee on Public Health
☐ Committee on Statewide Medical Planning
☐ Committee on Geriatrics

Representatives and Advisors

☐ Committee on Allied Medical Services
☐ Committee on Hospitals
☐ Committee on Cooperation with the Medical Schools of Connecticut
☐ Liaison Committee with Connecticut Pharmaceutical Association
☐ Liaison Committee with State Department of Income Maintenance
☐ Representatives to Connecticut Advisory School Health Council
☐ Delegates to Connecticut Public Health Association, Inc.
☐ Delegates to Connecticut Nutrition Council

Please Return by January 20, 1988

Signed:______________________________M.D.
(Please Print)

Office Address:______________________________

____

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a service to the medical profession in Connecticut. Opportunities for physicians to locate in Connecticut will be published as space permits and will be distributed to physicians making inquiries of such opportunities. Information should be sent to 160 St. Ronan St., New Haven, CT 06511 (203-865-0587).

Physicians wishing to establish practice in Connecticut are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

OPPORTUNITIES FOR PRACTICE

EMERGENCY MEDICINE

Park City Hospital in Bridgeport, CT is seeking full-time Emergency Medicine physician. Twenty-six thousand E.R. visits with Industrial Medical Center in E.R. Active Paramedic Program. Certification in ACLS and experience in Emergency Medicine required. First year compensation $96,000 with attractive benefit package. Send current CV to: Don Rankin, M.D., Emergency Department, Park City Hospital, 695 Park Ave., Bridgeport, CT 06604 or call (203) 579-5040.

Connecticut—Full-time position for Chief of Emergency Services at a greater Hartford area community hospital. Candidate should be board eligible or certified in Emergency Medicine. Competitive salary with a full benefit package. Send CV to Bradley Memorial Hospital, Personnel Department, 81 Meriden Ave., Southington, CT 06489.

INSTITUTIONAL MEDICINE

Doctors wanted for a small growing Health Care Facility in East Hartford, CT. Excellent way for new doctors to start up a practice. Please call or write: V.I.P. Health & Safety, 800 Silver Lane, Suite 201, East Hartford, CT 06118. (203) 569-3640.

INTERNAL MEDICINE

Internist BC/BE with or without subspecialty wanted for growing two-physician group in southwestern Fairfield County. Excellent opportunity for combining active primary care practice with local hospital teaching responsibilities. Please reply to CSMS, c/o IM/RM.

Major U.S. corporation, location southern Connecticut, seeks BC internist with interest career in occupational medicine. One year fellowship or residency cardiology necessary. Please reply to CSMS, c/o IM/SD.

Expanding Pulmonary/ICU practice in central CT seeks partner. Private office and hospital-based Pulmonary Rehab./Chronic Ventilator Program. Must be able to perform procedures required for Pulmonary/ICU practice. Beautiful area close to N.Y. and Boston. Please send C.V. to Dr. Joseph A. Harrison, 2150 Corbin Ave., New Britain, CT 06053-2263.

G.P./F.P./Internist for established center in southeastern, CT. Call Kathy Williams at (203) 443-4255.

MISCELLANEOUS

Very attractive physician's office available to share or sublet in downtown Westport. Popular medical location. Free patient parking. Call 454-3933.

BE/BC physician (IM, FP, ER, SUR) is needed to staff an extended hour private practice in Simsbury, CT. Practice includes internal medicine, endocrinology, minor non life-threatening trauma and some pediatrics. Part time or full time hours are available. Salary is negotiable. Please send CV to or telephone: Dr. Beth Hodge, 153 Westledge Rd., West Simsbury, CT 06092. (203) 651-5278.

OBSTETRICS & GYNECOLOGY

N.W. Connecticut B.C. solo OBS/GYN seeks associate to join well-established practice. Part time possible. Please send CV to CSMS, c/o OB/KD.

PEDIATRICS

Female pediatrician seeks BC/BE associate for growing established practice near New Haven. Competitive salary and benefits with early partnership. Please send CV with references to CSMS, c/o PED/EJ.

Pediatrician. BE/BC. University trained, needed to join solo Pediatrician in semi-rural Western Connecticut. Please call (203) 355-4113.

Part time position (evening and weekend hours) available for a pediatrician in a walk-in night-time pediatric clinic in Stratford. No call. No hospital care. Ideal for a pediatrician who is also a parent and wishes to spend days at home. Please send resume and references to P.O. Box 572, Shelton, Connecticut 06484.

PRIMARY CARE

Physicians—Full time/Part time for Walk-Ins in West Haven, Milford and Danbury. Send resume to CSMS, c/o PC/BY.

PSYCHIATRY

Norwich Hospital. A 600-bed State psychiatric treatment facility is accepting applications for anticipated vacancies in acute, geriatric and rehabilitation divisions. Benefits include a comprehensive medical package, paid leave time, retirement plan and possible housing on grounds. Connecticut license required. Contact: Office of Assistant Superintendent, Clinical, Norwich Hopsital, P.O. Box 508, Norwich, CT 06360. (203) 823-5264. AA/EOE.

RADIOLOGY

General radiologist with training in all phases of diagnosic and invasive radiology is being recruited by a six-man group of radiologists in Northeastern Connecticut. Practice includes three offices and a small progressive hospital. The hospital currently offers a full range of services including nuclear medicine, ultrasound and CT unit, new one-day surgical center recently completed, also regional dialysis center and busy outpatient department. Part-time may be considered for this position. Send C.V. to Jonathan Berger, M.D., 142 Echo Drive, Vernon, CT 06066.

Prevent recurrences month after month*

ZOVIRAX®
(acyclovir)
CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psycho-social difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤ 10 ml/min/1.73/m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200" - Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

---

*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

Burroughs Wellcome Co., Research Triangle Park, North Carolina 27709

Copr © 1986 Burroughs Wellcome Co. All rights reserved 86-ZOV-5

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

FAMILY PRACTICE

July '87. Age 36. Presently in practice. Nat'l bds. AB cert. D.O., Philadelphia College of Osteopathic Medicine, Philadelphia, PA; Int., Naval Reg. Medical Center, Jacksonville, FL; Res., Naval Hospital, Camp Pendleton, CA. Prefers solo, group or associate type practice in a medium-sized community. Write, William B. Glenn, D.O., 2 Raintree Way, Havelock, NC 28532.

GENERAL SURGERY

Aug. '88. Age 31. Presently in practice. Nat'l bds. AB cert. MD, University of South Florida, Tampa, FL; Int. and Res., U.S. Naval Hospital, San Diego, CA. Prefers solo, group or associate type practice in a medium-sized practice. Write, Laurier J. Tremblay, Jr., M.D., 11830 Caminito Ronaldo #224, San Diego, CA 92128.

INTERNAL MEDICINE

Aug. '88. Age 31. Licensed in Connecticut. FLEX. AB elig. MD, Autonomous University of Guadalajara, Guadalajara, Mexico; Int. and Res., Bridgeport Hospital, Bridgeport, CT. Prefers group, associate or industrial type practice in a small to medium-sized community. Write, Lewis I. Levenson, M.D., 267 Grant St., Bridgeport, CT 06610.

Sept. '88. Age 27. FLEX. MD., Georgetown University, Washington, DC; Int. and Res., University of Massachusetts Medical Center, Worcester. Prefers group, associate or institutional type practice. Write, CSMS, c/o DM/IM.

July '88. Age 37. Presently in practice. Nat'l bds. AB cert. MD, Kansas City College of Osteopathic Medicine, Kansas City, MO; Int., Michigan Osteopathic Medical Center, East Lansing, MI; Res., Walter Reed Army Medical Center, Washington, DC. Prefers group, associate or solo type practice. Write, Peter Kuzmick, D.O., 62 Diamond Ave., Fot Rucker, AL 36362.

July '88. Age 29. Nat'l bds. AB elig. MD, University of Connecticut, Farmington, CT; Int. and Res., University Hospital, Boston, MA. Prefers group type practice. Write, Russell H. Gerry, M.D., 56 Concord Ave., #46, Cambridge, MA 02138.

OPHTHALMOLOGY

July '88. Age 32. Presently in practice. Nat'l bds. AB elig. MD, NY Medical College, New York, NY; Int., St. Vincent's Hospital, New York, NY; Res., Hahnemann Medical College and Hospital, Philadelphia, PA. Prefers solo or group type practice. Seeking to practice general medical and surgical ophthalmology in a pracitce which will lead to a partnership. Write, John S. Ettenson, M.D., 220 Locust St., Apt. 3B, Philadelphia, PA 19106.

OTOLARYNGOLOGY

Jan. '88. Age 51. Licensed in Connecticut. AB elig. MD, Queens College, St. Andrews University, Scotland; Int., Maryfield Hospital, Dundee, Scotland; Res., Kingston General/Ottawa General, Canada; Fellowship, St. Luke's—Columbia Presbyterian. Prefers group or associate type practice in a medium to large-sized community with University affiliations. Write, F.H. Paul DiMaio, M.D., P.O. Box 86, Logansport, IN 46947.

PEDIATRICS

Jan. '88. Age 35. Presently in practice. M.B.B.S., Medical College, University of Jabalpur, Jabalpur, Madhya Pradesh, India; Int. and Res., Baltimore City Hospital, Baltimore, MD. AB elig. Prefers an opportunity with a Well-Baby Clinic, group practice or HMO. Write, Kirti R. Kodali, M.D., 1 Barts Court, Lutherville, MD 21093.

RADIOLOGY

July '88. *Diagnostic Radiology.* Age 31. Nat'l bds. AB cert. MD, Columbia University, New York; Int., St. Vincent's Hospital, New York; Res. and Fellowship, Hospital of University of Pennsylvania, Philadelphia. Prefers group, associate or institutional type practice in a medium to large-sized community. Write, Vicki J. Camerino, M.D., 220 Locust St., Apt. 3B, Philadelphia, PA 19106.

UROLOGY

July '88. Age 40. FLEX. AB elig. MD, Universidad Central del Este; Int., Presbyterian University of Pennsylvania Medical Center, Philadelphia, PA; Res., Wilmington Medical Center, Wilmington, DL (Surgery); St. Vincent Health Center-Hamot Medical Center, Erie, PA (Urology). Interested in general adult and pediatric urology and endourology. Prefers group or associate type practice in a medium to large-sized community. Write, Charles Dorfman, M.D., 3313 Amherst Rd., Erie, PA 16506.

PAID CLASSIFIED ADVERTISING

FOR RENT: Prestigious office space available in charming new Georgian-style professional building in Middletown, CT. Excellent location close to Route 9. Up to 2,300 sq. feet available. Pediatric dentist will build to suit. Telephone (203) 347-4681. P. Carta, D.M.D.

PRACTICE APPRAISAL AND BROKERAGE. Don't just close the door! Your practice may be able to be sold to a physician anxious to follow you. Our professional staff can provide you with a realistic appraisal and assistance in the transfer of your practice. Call: Physician International Practice Appraisal and Brokerage Division, 4-CM Vermont Street, Buffalo, NY 14213. (716) 884-3700.

DOCTOR'S OFFICES AVAILABLE IN JANUARY: Seven treatment rooms; three consultation rooms and much more. Subdividable. In Windsor center on busline. Excellent rent from excellent landlord. Call Wm. R. Smith Realty, (203) 688-4911.

WEST SHORE PROFESSIONAL BUILDING—New office space; Saw Mill Rd., West Haven, just off Exit 42, I-95. Prime location greater New Haven; great parking. FMN Associates. Call Dr. Natkin—Days, 933-6432; Evenings, 387-8012.

CNA's commitment to your malpractice protection goes a long way.

Malpractice insurance from CNA carries with it this important commitment: we will continue to provide quality malpractice protection for the long haul throughout the United States.

For over 30 years, CNA has lived up to this commitment by providing professionals with the best in malpractice protection. These years have been marked by stable, responsibly-priced programs attuned to professionals' changing needs.

This commitment can be seen in many other ways: CNA's programs include comprehensive coverage, local claim service, and meaningful loss control assistance. CNA also believes in vigorously defending against all frivolous lawsuits, and has established panels of defense attorneys that specialize in legal defense for malpractice cases. To make sure they continue to meet your needs, CNA maintains ongoing relationships with medical societies and individual physicians.

Learn how far CNA's commitment to your insurance protection can go.

A.A.W. Physicians Plan, Inc.
225 Spring Street
Wethersfield, CT 06109
(203) 563-8111

The CNA Physicians Protection Program is underwritten by Continental Casualty Company, one of the CNA Insurance Companies.

CNA
For All the Commitments You Make℠

INTERNIST

or FAMILY PRACTITIONER

or E.R. PHYSICIAN

Community Health Care Plan a prepaid, staff model HMO is in its fifteenth year of service with over 65,000 members. Our *Long Wharf* facility, which is affiliated with Yale New Haven Hospital, needs a board eligible/certified Internist, experienced Family Practitioner or an Emergency Room Physician with extensive background to work in the Urgent Visit Department. Excellent compensation package and attractive setting next to Long Island Sound. Submit C.V. and salary requirements to: Chief of Medicine.

CHCP
150 Sargent Drive
New Haven, CT 06511

We are an equal opportunity employer M/F

ch cp Community Health Care Plan

Affiliated with Blue Cross & Blue Shield of Connecticut ® ®

NEW YORK FERTILITY RESEARCH FOUNDATION, INC.

For the Investigation of Problems of Human Infertility

The Foundation provides a complete diagnostic and consultation service for infertile couples. Investigations are conducted by well-known specialists in conjunction with consultants in the various fields of medicine related to infertility.

The Foundation is supported by an in-house modern laboratory equipped to do most tests required for diagnosis and treatment. Literature on request.

1430 Second Avenue, New York, N.Y. 10021
Phone: 744-5500

"SELLING PRACTICES IS OUR BUSINESS"

Want to maximize the return on your investment? Before you buy or sell, call for an appraisal to assure the best financial and transfer terms. We are a full service practice broker, not simply a listing service. Since 1981, Countrywide has been instrumental in helping hundreds of doctors like yourself buy and sell their practices. We guide you through the entire sales process from initial meeting to closing. Our offices serve New England, New York and New Jersey.

Countrywide Business Brokerage, Inc.
319 East 24th St. Suite 23-G
New York, N.Y. 10010

(203) 869-3666 (617) 232-1075 (212) 686-7902

SIGNATURE LOANS

ONLY FOR DOCTORS, START UP PRACTITIONERS AND RESIDENTS

- Unsecured loan amounts $5,000 – $60,000
- No points or fees
- Competitive rates - level payments
- Up to six years to repay
- Rapid confidential processing

For information and application, call MediVersal 800/335-4952, Dept. 249

Connecticut Medicine

Connecticut State Medical Journal

SUBJECT INDEX

Volume 51 December 1987

A

- Abstracts, Danbury Hospital, Second Annual Research Day (Sep) 586
- Aging America (Norbeck) (Jan) 29
- AIDS, A Case of, A Clinico-Immuno-Pathologic Correlation (Caplan with Gandelman and Schneiderman) (May) 303
- Alzheimer's Disease and Dementia: New Perspectives on an Old Problem (Engel) (Dec) 785
- AMA:
  - Citation (Feb) 117, (Oct) 743
  - Dementia (Council on Scientific Affairs) (Feb) 97
  - Drug Testing, Scientific Issues in (Council on Scientific Affairs) (Nov) 733
  - Elder Abuse and Neglect (Council on Scientific Affairs) (May) 327
  - Health Care in Transition, Consequences for Young Physicians (Council on Long-Range Planning and Development (Mar) 178
  - Immunosuppression, Introduction to the Management of (Council on Scientific Affairs) (Jul) 447
  - Pharmaceutical Dissolution of Gallstones (Mar) 169
  - Professional Liability and Insurance and the Advisory Panel on Professional Liability, Report of the Special Task Force on (Board of Trustees) (Oct) 677
  - Smoke Detectors, Preventing Death and Injury from Fires With Automatic Sprinklers (Dec) 811
  - Smokeless Tobacco, Health Effects of (Council on Scientific Affairs) (Jan) 53
  - Video Display Terminals, Health Effects of (Council on Scientific Affairs) (Jun) 387
  - Women Physician, The New, Her Growing Numbers Are Not Represented in Organized Medicine (Advisory Panel on Women Physicians) (Aug) 533
- Annual Meeting Program, 195th, CSMS (Apr) 269, (Jun) 409
- Arthroscopic Re-Evaluation of the Knee (Tietjen) (Mar) 147
- Aspergillosis, Disseminated, and Cushing's Syndrome in a Community Hospital (Murry and Ahern) (Feb) 84

B

- Bacillus Cereus Bacteremia in an Intravenous Drug Abuser (Hinchliffe and Thornton) (Jun) 362
- Bladder Metastases Presenting with Urinary Frequency, Gastric Carcinoma with (LaMontagne, Jr., Breiter, Heimann and Patel) (Jul) 426
- Book Reviews (Feb) 133, (Mar) 196, (Jul) 483, (Nov) 742 (Dec) 817
- Breast Cancer Task Force, Consensus Statement by the (Connecticut Division of the American Cancer Society) (May) 311
- Breast Carcinoma Metastatic to the Palatine Tonsils (Lee with Fischer and Fappiano (Feb) 76
- Buspirone, A Non-Benzodiazepine for Anxiety (The Medical Letter) (Apr) 257

C

- Cancer Chemotherapy (The Medical Letter) (Aug) 537
- Cancer of the Pharynx and Larynx, Gastric Pull-Up Replacement of the Pharynx and Esophagus in (Walker with Cahow and Sasaki) (Aug) 499
- Cardioplegia Solution, Procaine Versus Magnesium in (Vercillo with Squier, Chawla, Houser, Hashmi and Becker) (Feb) 74
- Chronic Disease in a General Adult Population (Findings from the Rand Health Insurance Experiment) (Lohr with Kamberg, Keeler, Goldberg, Calabro and Brook) (Feb) 87
- Computed Tomograms of Head in Diagnosis and Patient Management, Utility of Emergent (El-Mallakh) (Oct) 634
- Consensus Summaries:
  - Diabetes Mellitus, Diet and Exercise in Noninsulin-Dependent (Apr) 249
  - Infantile Apnea and Home Monitoring (Jan) 45
  - Newborn Screening for Sickle Cell Disease and Other Hemoglobinopathies (Jul) 459
  - Platelet Transfusion Therapy (Feb) 105
  - Prostate Cancer, The Management of Clinically Localized (Sep) 607
- CSMS-IPA, Medical Societies, Peer Review, and (Brunell) May (325)

D

- Diaphragmatic Hernias of Morgagni (Martins with Kemler, Russell and Strauch) (May) 282
- Doctors, Should Your Children Become (Beck) (Jan) 38
- Drug Information Update, Hartford Hospital (Jan) 41, (Feb) 103, (Mar) 165, (Jul) 453, (Sep) 611, (Oct) 669 (Dec) 795

E

- Editorials:
  - AIDS Is First a Medical and Public Health Problem (Boyle) (Oct) 681
  - Aging, A Prescription for Successful (Besdine) (Sep) 619
  - Antibiotic Prophylaxis for Endocarditis (Johnson) (Jul) 475
  - Autologous Blood, A Better Product (Morse) (Aug) 549
  - Breast Cancer and the Primary Physician (Ergin) (May) 337
  - Care, Measuring Quality of (May) (Mar) 199
  - Cost Containment, a Challenge to Physicians (Lynch) (Mar) 200
  - Elderly, Medical Professionals Are Mandatory Reporters for Protective Services to the (Jun) 397
  - Elderly, A New Proposal to Limit Services to the (Norbeck) (Dec) 815
  - Imaging Studies, On Request or by Director (Ozonoff) (Oct) 681
  - Joint Commission Looks to the Future, The (O'Leary) (Nov) 750
  - Long-Term Care, The Challenge of (Massey) (May) 337
  - M.D. Health Plan, Physicians in Charge (Massey) (Feb) 127
  - Medical Courtesy Card Program (Massey) (Feb) 127
  - Medical Courtesy Card Receives Reviews (Staples) (Mar) 200
  - Medical Manpower (Massey) (Mar) 201
  - Multiple Sclerosis: Engimas of Etiology and Management (Johnson) (Dec) 815
  - Neurofibromatosis, 1977-1987 (Rubenstein) (Apr) 261
  - Neurofibromatosis Patient, Extended Support for the (Bonus) (Apr) 262
  - New Concern for an Old Disease (Massey) (Apr) 262
  - Patients, Our Aging (Weld) (Aug) 550
  - Physical Examination for Women, Annual (Petrie) (Nov) 749
  - Syringes for Addicts, Free (Neumann) (Jul) 476
- Elderly, Trauma in the, A Statewide Perspective (Degutis and Baker) (Mar) 161
- Emergency Medical Practice, Study Reveals High-Risk Areas of (Dunn) (Jun) 379
- Endometrial Cancer, The Present State of (Kohorn) (Aug) 495
- Epidemiologic Notes and Reports (Feb) 123, (Mar) 189, (May) 315 (Jun) 383, (Jul) 455, (Oct) 665 (Dec) 803
- Epitomes of Progress:
  - Allergy (Apr) 239
  - Emergency Medicine (Sep) 573
  - General and Family Practice (Jan) 10
  - General Surgery (Aug) 509
  - Internal Medicine (Dec) 774
  - Neurology (Jun) 368
  - Orthopedics (Jul) 431
  - Otolaryngology/Head and Neck Surgery (May) 297
  - Plastic Surgery (Mar) 153
  - Psychiatry (Oct) 645
  - Urology (Nov) 711
- Esophageal Sclerotherapy, Antibiotic Prophylaxis Prior to (Morgera) (Jul) 425
- Ethics, Telling Stories as a Way of Doing (Smith) (Nov) 725
- Executive Director's Office, From the (Feb) 137, (Mar) 204, (Apr) 273, (May) 346, (Aug) 555, (Sep) 627, (Oct) 691, (Dec) 823

F

- Fifty-five MPH Speed Limit and Traffic Related Mortality To Change or Not to Change (Drum with McElligott and Fielding (Nov) 707

Finger Dislocations in Alcoholics (Vercillo with Squier, Ritland, Russell and Becker) .... (May) 293
Fire Saved His Life, The (Feldman) .... (Jun) 377
Foodborne Disease, An Increasing Problem (Nightingale) . (Jul) 465
Ganser Syndrome, A Diagnostic and Etiological Enigma, The (Peszke and Levin) .... (Feb) 79
Geriatric Update, Reimbursement Controversies and Trends in Health Care Delivery to the Elderly (Weinberg) .... (Aug) 523

H

Haemophilus Influenza Pericarditis (Schwartz with Guercio and Katz) (Jul) 423
Halloween Appendicitis, Pin Perforation of the Appendix (Conforti with Smego and Kazarian) .... (Aug) 507
Health Insurance for the Nation's Poor (Reinhardt) .... (Jul) 441
Health Personnel, Trends in (Iglehart) .... (Mar) 171
Heart, The Inured (Schneiderman) .... (Feb) 111
Hepatic Imaging in the Management of Blunt Abdominal Trauma, The Value of (Cancose with Becker and Ferrara) .... (Jan) 7
High Expectations Versus Limited Resources (Smith) .... (Jan) 21
House of Delegates, Summary of Proceedings, Semi-Annual Meeting, Annual Meeting .... (Jan) 65, (Jun) 409
Human Aging, Usual and Successful (Rowe and Kahn) .. (Sep) 597

I

Inaugural Address of the Incoming President .... (Jun) 400
Infections in a Skilled Nursing Facility, The Incidence of (Gugliotti) (May) 287

J

Joint Commission on Accreditation of Hospitals, A History of the (Roberts with Coale and Redman) .... (Nov) 719

K

Kidney, Sarcomas of the (Nieh and Chang) .... (Jan) 10

L

Law, Medicine and Public Policy .. (Jan) 63, (Mar) 197, (Apr) 267, (May) 345, (Jun) 407, (Jul) 481, (Sep) 625, (Oct) 689, (Nov) 757,
Legislation, 1987 .... (Aug) 515
Letters to the Editor .. (Mar) 206, (May) 342, (Jul) 485, (Nov) 759
Liver, Primary Lymphoma of the (Rubin with Vercillo and D'Alotto (Mar) 145
Liver Tumors, Primary Malignant (Kent with Ciccarelli and Deckers) (Aug) 503
Long-Term Care Policy, Challenges in (Mechanic) ...... (Oct) 659
Lyme Disease, Eye Findings in (Bertuch with Rocco and Schwartz) (Mar) 151

M

M.D. Health Plan, Flashbacks (Whalen) .... (Feb) 121
M.D. Health Plan, Primary Physicians and (Robbins) ... (May) 323
M.D. Health Plan, The Different HMO (Hayward) ..... (Aug) 531
M.D. Health Plan Application for Licensure (CSMS IPA/HMO Steering Committee) .... (Jan) 33
M.D. Health Plan's HMO, CSMS Endorses .... (Mar) 204
Medical Education, Oral History and Contemporary (Viseltear)(Jul) 437
Managed Care, A Physician's View of (Kahn) .... (Dec) 799
Medical Office, Personnel Concerns in the (Sweeney with Salmon and McKiernan) .... (Nov) 745
Medical Practice Variations Revisited (Smits) .... (Jan) 25
Medical Staff Privileges Cases, Impartiality in (Arkin) ... (Apr) 235
Medicare Carrier, A Special Message from the (Blank) . (Nov) 717, (Dec) 793
Memoriam, In .... (Jan) 70, (Apr) 277, (Jul) 487, (Oct) 694
Meningococcemia, Chronic (Tuso and Ahern) .... (Nov) 698
Mirizzi Syndrome, Incidental (Fernandez with Zlotoff and Rubenstein) (Nov) 703
Multiple Sclerosis, Bacteriuria in, Documentation by Prospective Cultures (Wahlquist and Booss) .... (Dec) 766

N

Neurofibromatosis, Clinical and Genetic Features (Seashore)(Apr) 212
Neurofibromatosis, Current Concepts (Rosenfield) ...... (Apr) 210
Neurofibromatosis, Diagnostic Imaging in (Rosenfield and Rosenfield) (Apr) 226
Neurofibromatosis, Hypertension and, Secondary Causes (Setaro and Black) .... (Apr) 223
Neurofibromatosis, Neurological Manifestations of (Gillespie and Shaywitz) .... (Apr) 221
Neurofibromatosis, Orthopaedic Manifestations of, The (Rudicel) (Apr) 215
New Members .... (Mar) 202, (Aug) 557
Notices, Special .... (Jul) 488

O

Obituaries, Neumann, Hans H. (Jul) 473, Sweet, Richard T (Dec) 822

P

Paranasal Sinus X-Rays in Patients with Olfactory Disorders, The Prevalence of (Goodspeed with Gent, Leonard and Catalanotto) (Jan) 1
Pediatric Cardiology, From Powers to Pearson, A 40-Year Prospective of (Whittemore) .... (Oct) 655
Physician Placement Service ...... (Jan) 71, (Feb) 139, (Mar) 205, (Apr) 279, (May) 347, (Jun) 413, (Jul) 491, (Aug) 559, (Sep) 631, (Oct) 695, (Nov) 763, (Dec) 828
Physicians Dilemma, The (Nielsen) .... (Feb) 113
Pneumomediastinum from Cocaine Inhalation (Ponn with Ruiz, Toole and Stern) .... (Jun) 366
Poems, ... (Apr) 258, (Sep) 616
Pregnancy, Acute Fatty Liver of (Tummillo and Lashgari)(Mar) 142
President's Page .... (Feb) 129, (Mar) 193, (Apr) 263, (May) 339, (Jul) 477, (Aug) 551, (Sep) 621, (Oct) 685, (Nov) 753, (Dec) 819
President, Report of the (Czarsty) .... (Jan) 67

R

Reflections on Medicine (Jan) 60, (Feb) 131, (Mar) 195, (Apr) 265, (May) 341, (Jun) 405, (Jul) 479, (Aug) 553, (Sep) 623, (Oct) 687, (Nov) 755, (Dec) 821
Rheumatic Fever, Recent Outbreaks of an Old Disease (Markowitz and Gerber) .... (Apr) 229
Rheumatoid Arthritis Complicated by Temporal Arteritis (Urman and Abeles .... (Jun) 361
Rheumatology Teaching Program, Evaluation of a, for Family Medicine Residents (Abeles and Sheehan) (Dec) 769

S

Syringoma, Malignant Chondroid (Clark) .... (Sep) 569

T

Terminal Care Decision Making (Solinsky) .... (Jun) 350
Thoracic Aorta, Sequential Replacement of the (Sardella with Grotz and Allmendinger) .... (Sep) 563
Thyroid Cancer, Surgery for, Recommendations Versus Reality (Kozol and Numann) .... (Oct) 643
Thyroxine Ingestion Leading to Thyroid Storm and Accelerated Thyroxine Turnover, Chronic (Petit, Jr. and Barrett) .... (May) 291
Trauma Patients with Substance Use or Psychiatric Illness, Identification and Disposition of (Chang and Astrachan) .... (Jan) 4
Travelers, Advice for (The Medical Letter) .... (Jul) 467
Typhlitis in Acute Leukemia, (Spellman with Rogers and Kazarian) (Sep) 565

U

Urachal Cyst, Obstruction of the Small Intestine Due to an Infected (Ciccarelli with Belkin and Banever) .... (Jul) 428

V

Verapamil for Hypertension (The Medical Letter) .... (Oct) 673
Vertical Banded Gastroplasty for Morbid Obesity, Immediate and Long-Term Results of (Holt with Castiglione and Trowbridge)(Oct) 638
View from the Hill .... (Apr) 255, (Jun) 395, (Jul) 471, (Aug) 535, (Sep) 614, (Oct) 741, (Dec) 809
Vulva, Leiomyosarcoma of the (Lenaz with Nguyen and Hewett) (Nov) 705

AUTHORS' INDEX

Volume 51 December 1987

A

Abeles, M. (Jun) 361, (Dec) 769
Ahern, M.J. (Feb) 84, (Nov) 698
Allmendinger, P. (Sep) 563
Arkin, H.R. (Apr) 235
Astrachan, B. (Jan) 4

B

Baker, C.C. (Mar) 161
Banever, T.C. (Jul) 428
Barrett, E.J. (May) 291
Beck, L.C. (Jan) 38
Becker, D.R. (Jan) 7, (Feb) 74, (May) 293
Belkin, M. (Jul) 428
Bertuch, A.W. (Mar) 151
Black, H.R. (Apr) 223
Blank, G.I. (Nov) 717, (Dec) 793
Booss, J. (Dec) 766
Breiter, J.R. (Jul) 426
Brook, R.H. (Feb) 87
Brunell, R.J. (May) 325
Bryan, James E. (Dec) 809

C

Cahow, C.E. (Aug) 499
Calabro, T.A. (Feb) 87
Canose, J. (Jan) 7
Caplan, M. (May) 303
Castiglione, C.L. (Oct) 638
Catalanotto, F.A. (Jan) 1
Chang, G. (Jan) 4
Chang, J.F. (Jan) 10
Chawla, S. (Feb) 74
Ciccarelli, O. (Jul) 428, (Aug) 503
Clark, P. (Sep) 569
Coale, J.G. (Nov) 719

D

D'Alotto, J.A. (Mar) 145
Deckers, P.J. (Aug) 503
Degutis, L.C. (Mar) 161
Drum, E.T. (Nov) 707
Dunn, J.D. (Jun) 379

E

El-Mallakh, R.S. (Oct) 634
Engel, P.A. (Dec) 785

F

Fappiano, A.P. (Feb) 76
Feldman, M.G. (Jun) 377
Fernandez, R.J. (Nov) 703
Ferrara, J.J. (Jan) 7
Fielding, L.P. (Nov) 707
Fischer, D.S. (Feb) 76

G

Gaines, G.A. (Apr) 258
Gandelman, M.S. (May) 303
Gannon, R. (Dec) 795
Gent, J.F. (Jan) 1
Gerbert, M.A. (Apr) 229
Gillespie, S.M. (Apr) 215
Goldberg, G.A. (Feb) 87
Goodspeed, R.B. (Jan) 1
Grotz, R. (Sep) 563
Guercio, C.A. (Jul) 423
Gugliotti, R. (May) 287

H

Hashmi, F. (Feb) 74
Hayward, D.A. (Aug) 531
Heimann, W.G. (Jul) 426
Hewett, W.J. (Nov) 705
Hinchliffe, C.E. (Jun) 362
Holt, J.B. (Oct) 638
Houser, S. (Feb) 74

I

Iglehart, J.K. (Mar) 171

J

Johnson, D.P. (Dec) 815

K

Kahn, L. (Dec) 799
Kahn, R.L. (Sep) 597
Kamberg, C.J. (Feb) 87
Katz, A. (Jul) 423
Kazarian, K.K. (Sep) 565
Keeler, E.B. (Feb) 87
Kemler, L. (May) 282
Kent, G.G. (Aug) 503
Kohorn, E.I. (Aug) 495
Kozol, R.A. (Oct) 643

L

Lamontagne, Jr., A.E. (Jul) 426
Lashgari, M. (Feb) 142
Lee, K.J. (Feb) 76
Lenaz, M.P. (Nov) 705
Leonard, G. (Jan) 1
Levin, G.A. (Feb) 79
Lohr, K.N. (Feb) 87

M

Markowitz, M. (Apr) 229
Martins, M. (May) 282
Mechanic, D. (Oct) 659
Miranda, M. (Sep) 616
Mogera, R.V. (Jul) 425
Murry, P.M. (Feb) 84

MC

McElligott, J. (Nov) 707
McKiernan, M.E. (Nov) 745

N

Nguyen, T.C. (Nov) 705
Nieh, P.T. (Jan) 10
Nielsen, C.C. (Feb) 113
Nightingale, S.L. (Jul) 465
Norbeck, T.B. (Jan) 29, (Dec) 815
Numann, P.J. (Oct) 643

P

Patel, D.S. (Jul) 426
Peszke, M.A. (Feb) 79
Petit, Jr., W.A. (May) 291
Ponn, R.B. (Jun) 366

R

Redman, R.R. (Nov) 719
Reinhardt, U.E. (Jul) 441
Ritland, D.G. (May) 293
Roberts, J.S. (Nov) 719
Robbins, K.M. (May) 323
Rocco, E. (Mar) 151
Rogers, J.F. (Sep) 565
Rosenfield, A.T. (Apr) 210, 226
Rosenfield, N.S. (Apr) 226
Rowe, J.W. (Sep) 597
Rubenstein, S.R. (Nov) 703
Rubin, J.S. (Mar) 145
Rudicel, S. (Apr) 221
Ruiz, R. (Jun) 366
Russell, J.C. (May) 282, 293

S

Salmon, P.M. (Nov) 745
Sardella, W. (Sep) 563
Sasaki, C.T. (Aug) 499
Schneiderman, H. (Feb) 111, (May) 303
Schwartz, E.G. (Mar) 151
Schwartz, K.V. (Jul) 423
Seashore, M.R. (Apr) 212
Setaro, J.F. (Apr) 223
Shaywitz, B.A. (Apr) 215
Sheehan, T.J. (Dec) 769
Smith, C.T. (Jan) 21
Smith, D.H. (Nov) 725
Smith, H.L. (Jan) 25
Solinsky, A.E. (Jun) 350
Spellman, J. (Sep) 565
Squier, R.C. (Feb) 74, (May) 293
Stern, H. (Jun) 366
Strauch, G.O. (May) 282
Sweeney, D.R. (Nov) 745

T

Thornton, G.F. (Jun) 362
Tietjen, R. (Mar) 147
Toole, A.L. (Jun) 366
Trowbridge, P.E. (Oct) 638
Tummillo, M. (Mar) 142
Tuso, P.J. (Nov) 698

U

Urman, J.D. (Jun) 361

V

Vercillo, A.P. (Feb) 74, (Mar) 145, (May) 293
Viseltear, A.J. (Jul) 437

W

Wahlquist, G.I. (Dec) 766
Walker, R.K. (Aug) 499
Weinberg, A.D. (Aug) 523
Whalen, W.A. (Feb) 121
Whittemore, R. (Oct) 655

Z

Zlotoff, R.A. (Nov) 703

NOTICE TO CONTRIBUTORS

Members of The Connecticut State Medical Society reading papers before other organizations are requested to submit their papers to the JOURNAL for consideration by the Board of Editors for publication. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult **INFORMATION FOR AUTHORS.** This material may be obtained from the *Journal* office. Adherence to the instructions will prevent delays both in acceptance and in publication.

Please send them to:

Robert U. Massey, M.D., Editor
Connecticut Medicine
160 St. Ronan Street
New Haven, Connecticut 06511

5470 5

NOT TO CIRCULATE

NOT TO CIRCULATE

WERT
BOOKBINDING
Grantville, Pa
Jan Feb. 1989
We're Quality Bound